Larry Wasserman

LARRY: Perfect, thanks very much. And thank you very much for inviting me. As the previous speaker said, the comments you hear from me today are my own and not necessarily the tribe's. As I was putting this talk together, I think at the end of the day the conclusion for us is uncertainty is our friend, and I'll try to finish up by explaining that to you all. But I wanted to talk on how, at least the tribe that I work for, views how to deal with uncertainty and managing around it. You've probably all thought about this before that the uncertainly that we deal with, although we are probably mostly scientists in this room, really is the combination of scientific, political and legal uncertainty, and I would argue that the easiest uncertainty to deal with is the scientific uncertainty. Let me just talk a little bit about the tribe and where we are.

Swinomish tribe is located in Puget Sound on Skagit River. It's the third largest river in western United States, about 3000 square miles, mean annual flow of 16000 CFS. It supports sustainable and wild population of all six salmon species and we manage them all for a wild population so we don't depend on hatcheries. It contributes about a third of the [fresh] water to Puget Sound and about a third of the number of Chinook salmon**.** And finally we have three listed stocks of salmon in Skagit. For the tribes, it is critical to their existence. For those of you not from the northwest; salmon are the buffalo of the northwest. They depend on them for ceremonial purposes, for subsistence purposes, religious purposes; it's part of their day-to-day life and it holds the fabric of the community together.

So when dealing with uncertainty, as I try to speak to you, I will try to talk about uncertainty that I've learned from Indian people over 30-some odd years. Look at a treaty that was established in 1855 between two sovereign nations in an age of great uncertainty. What the uncertainty of Europeans coming and moving out west and not knowing what kind of relationship, long-term relationship, to have with Indian people, uncertainty from the Indian people of what happens to their future, and so these treaties were not the United States

giving something to the tribes but rather co-equals managing their future, again trying to manage their uncertainty.

In those treaties, there was an establishment of a homeland, a reservation that was their own that they could live on, sustain future generations on. In the Northwest, we have a unique thing in the Point Elliot treaties of fishing rights. I will talk about that a little bit later, but the fact was that these rights said to the tribes, "You'll be able to fish forever." And ultimately the courts said their fishing rights are in common with non-Indians.

Water rights, which is why we're here today—and again for those of you not from the Northwest and certainly maybe from the East—water rights in the West particularly in Washington State where I'm from, prior appropriation, which is "first in time, first in right," the tribes maintained that they've used those water rights since time immemorial because the fish depend on those water rights, that water, and they've been fishing since time immemorial. There's lots of discussion about what the extent of that right is, where it is; we believe it exists off the reservation, we believe it's enough water to sustain meaningful fisheries so that it's important for us to make sure that we have water off the reservations and we believe we have a right to that water off the reservations.

And finally, among other things, hunting and gathering rights with a different set of criteria for that. How did that work out for us? Prior to 19… from the time of the treaties up until 1974, the state of Washington really restricted tribal fishing throughout their homeland. Before a decision called US v. Washington and the Boldt decision, because of those restrictions we were catching 2 percent of the fish. In 1974, we got his decision that said that the tribes could, after providing for adequate escapement (fish coming back to spawn), we could harvest up to 50 percent of the harvestable surplus and we shared that harvest of a surplus with the non-Indians. We get up to 50 percent of the fish; that's what happened. 2015 we're catching less fish now than we did in 1974 when we were catching 2 percent of the fish. How is that working out for us?

So we really need to be doing something a little bit different. For over 100 years the state of Washington has permitted these diversions and withdrawals with relatively little regard to fisheries needs, certainly of the tribes and tribal water rights. And I don't mean this to be an indictment for the state of Washington. Really what's happening in the Skagit isn't so critical but I guess I would ask you to think about this in your own backyards and how the lessons that we may have learned and are continuing to learn would apply to you all. So I'll put it in the context of the Skagit but I'd like to think it's a little bit broader. So our salmon fisheries have been considerably constrained, and I'll try to go through the lessons learned. It's the certainty that was supposed to flow from the treaty was converted to the certainty that the fish and flows would be gone without affirmative actions. That's the certainty that we've come to. We need to do something. And there is no such thing as certainty with regard to political promises or legal principles, and I'll talk about that as well.

So just by way of an example of how we deal with scientific uncertainty, this is a spawner recruit curve. On the bottom it shows the number of fish that come back to spawn and the y-axis is how many fish will come back as a result of those spawning fish. You can see that we don't have a perfect fit here, that there's a fair amount of noise in the system and that noise comes from both the environmental variability from year to year but also observation variability. We have to go out and actually see the fish spawning or their nests, their redds, and make a determination there's noise in the system. And why this is important, it allows us to predict harvest over the long term or over the next year, what we need to do or recover or protect systems.

And if we run this model out over a long period of time, we see there's a huge amount of uncertainty. If we run this over 500 generations or a 1000 generations, there's lots of potential or potential curves that could be developed as you look at the kind of variably and the noise and the uncertainty and our precise measurements. So, any one of these curves may be the actual curve of spawner recruits. I don't want to go into a whole lot of detail, just to say lots of uncertainty, but if we take all those potential outcomes and say, what's the most

likely outcome; and if I go back and say in this area in the middle you can see the lines are very close together. There's a higher probability that that's what actually may occur than the ones that are at the top or the bottom.

And so the whole point of this is that it allows us to develop a probability function of what's the likelihood that a particular spawner recruit curve will be right. So if we want to manage, we'll pick something near the peak of the curve. We could be wrong. The reality might be it might be out on the ends, but the point is that it gives us some idea of the kind of uncertainty that we have and we can manage to the best extent that we can knowing we're going to be wrong part of the time. But to me this is the easy stuff because we actually put numbers on it, we know we're not particularly – they may not be particularly accurate but we have some sense of how wrong we can be.

So managing scientific uncertainty: Have the best data possible and acknowledge that uncertainty we're not going to be right. What we found is in – is support the federal – enlist the support of federal and state agencies. I have to do this; I hope I embarrass the hell out of him. Where is Hal Beecher? Stand up, Hal. I've been working with Hal about 30 years. In all my years dealing with federal and state agency, Hal has been the most standup guy in working with the state in trying to deal with fish and wildlife issues. So I just ask you all to buy him a drink tonight; he's been great. [Laughter] I'll help you share.

The lack of precision is no excuse for the lack of a decision. No decision is a decision, and some people really like not having a decision; status quo works great. Sound ecological principles must be applied even if we don't have the specific data. We're developing a steelhead recovery plan right now. Steelheads are listed in our base and we have some very sophisticated life history models. One of the things we don't have, and this is no surprise. Gee, wouldn't it be great if we had a [weighted usable] habitat curve versus numbers of fish. The Holy Grail doesn't exist.

So we didn't – do we now say that we're not going to include stream flow in our model because we can't quantify the recovery numbers that we'll get? Can't do that, I'm not willing to do that, so we have to use our best judgment with regard

to those known ecological principles, build them into the model to the best we can. Take the heat from folks that say, "I don't believe it and you haven't demonstrated that stream flow is important." Sustain that and have allies like state and federal agencies, if you can, to be able to try and address those issues. And then recognize—and I know you've heard this before—that those that don't like the decision will attack the science regardless of the quality of the information.

So I want to talk a little bit about the instream flow rule that Hal and I worked on. And Brad who is here; Brad Caldwell is here and some others. Because these flows have been given away without regard to fisheries for many years, the tribes because what we believe are water rights went to some of the two largest utilities. And guess what we did? We created a lot of uncertainty. We said, "We have a senior water right and we're senior to your water right, and we want to work something out with you. If not, all of a sudden you have a whole lot of uncertainty because if you look around adjudications in the west, what you thought was yours may not be yours." Uncertainty was our friend.

And so we reached a written agreement, a memorandum of understanding to start the process that said, "We won't sue you for 50 years if you pay and help us do an instream flow study." And instream flow is ultimately… and the idea is that we want to see an instream flow or rule established. And so we had some allies because there was a balance of uncertainties. So we did IFIM, we didn't use hydrology. Our view, and we can have a debate later on, is that why not set it at the 1 percent exceedance level? We'd like to have that one-in-a-hundred year events of high flows in the summertime where we might not be actually be able to get fish production higher than it might occur some other times.

Let's not set it at 50 percent exceedance, as the state had often done, because as Tom said earlier; 50 percent exceedance becomes zero percent exceedance or 1 percent exceedance. Man it down to that number. We want to be able to say we want the benefits of high flows. Implicit in this state water law in Washington State, everybody that already had a water right isn't affected. This would only affect new water users. So it created the certainty for people that had water;

they didn't have to worry about it. People that hadn't even been born and moved yet into the basin, those are the ones to be affected.

The other thing we did is we found this neat little article, I think it was written in about '97called "How much water does a river need?" (Richter, B.D., J.V. Baumgartner, R. Wigington, and D.P. Braun. 1997. How much water does a river need? Freshwater Biology 37 (1): 231-249. DOI: 10.1046/j.1365-2427.1997.00153.x). We wanted to know how do we deal with normative flows, how do we make sure we still have channel-forming flows and flows that would put smolts out to the ocean in the spring time. Great article and we said, "Great, we'll take the -- we won't reduce the mean monthly flow by 10 percent, it's not zero, there's some effect, but we're going to try to maintain those natural flows,' and we were able to do that.

And finally we tried to maintain flows. Chinook salmon are dependent on an intact estuarine habitat, and I'll show you a photograph.

And so they live in these little channels. Here is the Skagit River coming in on the right, and during low flows they stay in these channels. As the tide comes in or the river comes up, they move out of those channels into those flats and feed. And we wanted to say, "We're not going to reduce the amount of time that they can feed by more than 10 percent." What's 10 percent? That's what we use statistically sometimes for statistical significance, and we just decided that would be the number. It's a political decision based on sort of scientific principles of 10 percent being statistically significant. And so we established a metric of not having more diversions than would reduce mean monthly flow by 10 percent and reduce the amount of foraging time for Chinook salmon.

So lessons learned: It's necessary to incorporate ecological principles even in the absence of site-specific data or previously established criteria. This whole idea of being estuarine flows hadn't been done before as far as we knew and I think the normative flows from the paper that we had talked about really hadn't been instituted in a broad way before, and we said, "We think this is reasonable."

One of the big things that we made a mistake on in retrospect is we didn't deal with climate change. We certainly weren't thinking about it in 2000. What we found, for example, we have about 50 percent of the glaciers in lower 48 states. Glaciers have been reduced by 50 percent. They contribute about 10 or 12 percent of stream flows in the summertime to the Skagit. Climate projections, our peak flows will increase by about 30 percent, frequency of those peak flows will be higher, and between 5 and 20 percent reduction in non-glacially fed streams as a result of climate change. So there's an uncertainty. We know what the trend is. There's no uncertainty as to where the direction is going, but we didn't deal with it particularly well.

People incorrectly expect that stream flows will be met all the time and, "oh, gee, how could you set the flows that are only here 10 percent of the time?" Well, if we set it at 50 percent of the time, all the rest of the water will be given away.

And we also found a lesson learned. The public really didn't get involved until it actually affected them not being able to get water. We take a look along the instance in the Western United States with regard to how many times water has been taken away from people or really been implemented in a way to restrict flows, it's pretty rare. We actually have no wells being drilled in the Skagit basin, nor any water rights being issued in the Skagit basin as a result of litigation we brought. Some people are not very happy about that. We now have certainty that water is not being reduced. How do we get there? That's sort of the endpoint to this.

So managing political uncertainty – I think that's the greatest level of uncertainty and the risk tolerance associated by the public and elected officials is inversely proportionate to the desire to maintain the status quo. In other words, if I like the way things are, you give me more and more data. I mean, it doesn't matter how much data you have, I need more because I want to be certain that I need to do this, and you never reach that point.

Political decision rarely makes determinations over the long term. And so I would ask you: How often do you all feel that we've overregulated rather than under-regulated?

So what often happens is we do the best we can and we as scientists know it's not good enough, we struggle for ten years, we prove it's not good enough, we then make more and then we make more; we're always behind the 8-ball. Over time the politics will catch up to the science just because there is overwhelming evidence.

And then – the existing laws we're finding are ephemeral. We've had three instances, and I'll talk about where we have the law on our side. Fish passage was required under state law, we sued under that state law; the state changed the rules and said, "You don't need to have fish passage anymore."

We have the thing called the Growth Management Act that says you are supposed to protect and repair areas along streams and you are supposed to be basing it on science. They litigated that and they said, "Now we are going to leave it up to the county to do the balancing and it doesn't need to be just on science."

And then we had this instream flow rule that I talked about we got passed in 2001. We had eight bills in the legislature and we just won in the State Supreme Court a few years ago because the state tried to change the rule, we challenged it, we won in the State Supreme Court, eight bills in the legislature to overturn the rule and allow then to give more water away. So there is uncertainty associated in the political arena.

Lessons learned: Having the law on your side doesn't necessarily provide the certainty. Science and scientific accuracy is really just one factor that determines political outcome. The one thing I found that the politicians are really good at scientifically at counting is votes. They are really good at that. And so at the end of the day, knowing that and knowing that they are there because they like their jobs and most of them, I think, are there because they want to do good. Their view of good may be different than ours but they want

to be doing good job and so they want to make sure that they have the votes to keep their position. And I think you just have to recognize that.

Also critically in all the agreements we've had, handshake agreements don't work. What we found for the instream flow rules, prior to going through the rule making is having an agreement that says, "This is the schedule, this is the way we are going to a make decisions, this is the order we are going to make decisions," and we had it written down, so that at the end of the day when we got to the end of the process, people can say, "No-no, that's not we meant." We've had a memorandum of understanding with Skagit County, had very specific provisions of where we live, and we ended up litigating acts and county said, "Nah, we don't want to do that. That's not what the rule meant." Well, we're not bound by that rule. Having it in writing provided us political cover, it allowed us to speak to the decision makers to say, "You made this deal," and just like the treaties we've learned from this. You're going to be bound by this, and I'll come back to this point in a minute.

How much time do I have? Oh plenty of time.

The other thing we've learnt is that you really need to be in this for the long haul. I started my professional career, the Yakima tribe in 1981. I think the adjudication of the Yakima River basin started in 1979; it's not quite over yet. These water issues in the adjudications take a long time. I would also tell you with the Indian people, they got plenty of time. I mean the resources diminishing – and I don't mean to make light of it, but they're not going anywhere, it's not like they can go from the Skagit Valley to Wyoming. They live there, they've been there for 10,000 years, and they are a resilient people and they will keep doing what they need to do until their future generations are protected.

So we're not put off by these long time periods but it's very expensive and it's very difficult in the communities that you live in when you sort of assert these rights, but absent that, we'll continue to see that water dribble away.

So one of the things I guess is that to talk a little bit about before we get to the legal portion of it, why uncertainty is our friend. We've had -- forest practice is

a big industry in the Northwest and some of the companies in the '60s and '70s and '80s had a tremendous amount of political power and they had absolute disregard in my biased view with regards to the protection of natural resources. And so in 1987, as a result of this court decision I told you about the US v. Washington and Boldt decision, there was a determination at the time that said the tribes have the ability to get habitat protected. The timber industry at the time was concerned that we would have veto power over all timber practices. Now the law has changed since then, and I can talk about that, but it created a tremendous amount of uncertainty for the timber companies. And guess what? They said, "Can we sit down and talk about this?" They couldn't care less before that point, in my view. We sat down and negotiated a new agreement that dealt with the riparian protection, construction of roads, a variety of things. And that was called the Timber, Fish, and Wildlife process. It was in the late '80s, it worked fine, wasn't perfect, things started to slide little bit, and in my view the timber industry became much less responsive to us. All of a sudden we had this pesky little Endangered Species Act with regards to Chinook salmon. Timbers industries said, "Can we sit down and talk to you guys?" Because again they were worried about these issues and we negotiated another agreement. Same thing true with the two hydro power projects we have in the Skagit is that one of the projects got relicensed about 20 years ago. They've been great; they've gone way beyond their license agreements. When they've not been able to meet their agreements, we've been okay with that. We've been great partners – city of Seattle, Seattle City Light, great partners.

We have another private ownership of the dam in the Skagit who really were incredibly unresponsive until they needed to get relicensed. All of a sudden, it's a whole new relationship. That uncertainty really worked for us with regard to saying, "We need to deal with these issues." There was no scientific underpinning there was a problem. Fish were dying 90 percent trying to get out of these dams and down river. They had a thing called a gulper; they had this big net that would catch fish coming out of the lake and smolts that it didn't

work very well at all. So this uncertainty was quite helpful for us because it provided a basis for people to start to negotiate.

So somebody talked about it yesterday, BATNA, "What's the Best Alternative To a Negotiated Agreement?" Going to court, you don't know what you're going to get; I'll talk about that next. So how we try to think about things is: if we negotiate, can we do a better job through negotiation than we may get in the courts or how much less would we get? But the certainty of us negotiating with you and being in control of our own destiny is much better than leaving it to a judge whose brother-in-law may be an irrigator or a developer or an Indian, who knows?

So having that direct negotiating opportunity is good, but it's only if you have somebody that's willing to negotiate. For example, the timber industry, we negotiated with them; hydro powers, great; irrigators, not so much. They don't feel any threat. We did some studies in 2008, I think, to demonstrate the 50 percent of the irrigation taking place in the Skagit Valley had no paper water rights – 50 percent 2008. Sent a letter to the Department of Ecology, said, "What about this?" We're still waiting for a response. If you're an irrigator, how are you going to – they're not knocking on our door and saying, "Gee, can we sit down and talk?" There's no threat; there's no uncertainty at his point. So we've had an inability to negotiate on some of these issues because there is no uncertainty.

So, our general approach – from what we learnt since treaty times is that we, and people know this, if somebody breaks an agreement with us or they break the law that's going to adversely affect our resources, we will litigate. I don't mean that to be argumentative. A deal's a deal; we expect a deal's a deal. And what's on line for us is our community's future. We can't move any place else. We cannot fish in the Skagit and go and fish in some other tribe's backyard. They won't do that. So I don't want to be harsh about it, but that's the way we are approaching it.

This has created certainty in other people's minds that that's what we're going to do and it drives them to us having a negotiated agreement and we've had

huge agreements on very contentious issues when we've had parties both willing to do that.

What's the message there for a lot of you all that don't have tribes or have different laws? I believe, this is my first time with you all, most of the people in this room are in the business to try to do resource protection to the best extent that they can and they're limited by the existing laws that they are operating under. But I would argue that if the folks that are coming in that have as a result of their actions the potential for damaging resources, if they feel that you are going to say no, if they're feeling uncertainty, the likelihood of them doing more than they would, knowing "I don't have to worry about Wyoming, the state of Wyoming, they're going to cover me, it's doesn't matter, I'm going to get to do what I need to do," why would they mitigate for anything? Why would they change the way they're doing business? I don't mean to pick on you, first state that I'm seeing here. So maybe you can create some of that uncertainty to be able to get some more negotiating room, to be able to deal with on these water issues that have been quite difficult.

As I said, part of what we try to do on our litigation is to try to balance what we can get out of the negotiations compared to what we might get in a court. We have noticed that, by and large on water issues, the courts rarely take water away from people. If you take a look at a lot of the federal water negotiations, there is sort of an interesting outcome. Courts will say, "The tribes have a senior right," they go through a negotiation, and what happens is they don't redistribute the water most of the time. Federal government comes in with a gazillion dollars and they build new infrastructure to be able to spread the water around differently, but rarely does water get taken away from people – not never but rarely. So where we are, we don't have these big infrastructure systems. The problem we have in the Skagit is a multitude of little tributaries, with no dams on them that are critical for sustaining the populations and lots and lots of wells that don't need to be permitted, as well as old surface and groundwater diversions.

And so we don't have a big infrastructure way to solve these issues, but we know that if we keep waiting and waiting and waiting, the more that water is given away, the likelihood of us having a successful outcome is less. We can't wait anymore. And the other thing is that we can't wait for public opinion to be on our side because in our community we have a very difficult time. We have 900 tribal members in a community of 100,000, relatively few allies, and if we depend on public opinion to support us, it won't happen.

So the lessons learned is that in the courts the facts don't always prevail and that the law changes and the judges consider social and political ramifications. For example, we are in the middle of another part of this US v. Washington case that's dealing with fish passage and we've been very specific that this case is only about fish passage, because the state has a bunch of culverts that they've admitted block – their documents show 200,000 fish being blocked from getting to their spawning grounds. Very specific case, people are trying to make it into the end of civilization as we know it, but folks, people are trying to do that to influence the judge to say, "If you rule this way, end of civilization as we know it."

What we've learnt from litigation: The costs are high, process is always going to be slower than you anticipate, and what we found is that because we've had to take these positions, there's a lot of friction in the community, not within the tribal community but between the tribal community, others that are feeling that they're threatened, their way of life is threatened. And it is to some degree, but we can't see – well, the tribe will then not fish anymore because we need to have one more potato farmer or one more housing development. So there's a lot of friction and that comes from the litigation. And I think you just have to accept that. Our view is that we want to try and negotiate most of these things we have negotiated, but when we are forced to go to court, we don't go back to what we were willing to do in a negotiation. That deal is done.

So many of the water issues that we had, we were willing to settle on what the county had originally wanted, and at the very end they said, "Oh, but we also need another 200 CFS." And so if you've going to deal with us, there's

certainty that we'll try to negotiate; if you break the deal, we're going to address these issues, and we don't go back to what we we're willing to do before.

And then we found that federal decision generally have more permanency than state or local decisions. So in all of our permitting review we try to deal with the federal agencies more than anything else.

I guess let me close by this on a little different topic. I appreciate being invited today. I don't see many other tribal colleagues here. Tribes control or manage hundreds and thousands of millions of acres in the United States and they manage the water in one fashion or another throughout much of the United States. I'd also argue that there would be allies for you in many places around the United States. So I would encourage you all to think about whether there is a place here for tribal biologists and tribal instream flow experts, in dealing with you in a way that's a collaborative one rather than only when we have a crisis.

So I guess I would leave it there and say thank you very much for having me and I've enjoyed being here. Thank you. [Applause]