LAMPREY TECHNICAL REVIEW COMMITTEE
NH Instream Flow Pilot Program
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Lamprey TRC Meeting Minutes
Thursday, November 13, 2008
9:30 am – 12:00 pm
NH Society for the Protection of Forests
Hazen Drive
Concord, NH

Minutes taken by Lisa Fortier, Executive Secretary, Watershed Management

Members Present:	**Representing**
Brian Gallagher	Business Interests, NH Water Works Association
Vernon Lang	US Fish and Wildlife Service
John Magee	NH Fish & Game
Jim McCartney	Trout Unlimited
Doug Bechtel	The Nature Conservancy
Carl Paulsen	NH Rivers Council
Robert Flynn	USGS

Others Present	**Affiliation**
Mike Kappler	NH legislature (SB330)
Al Larson	Normandeau Associates
David Cedarholm	Town of Durham – Lamprey WMPAAC
Lee Carbonneau	Normandeau Associates
Brian Giles	Lamprey WMPAAC

DES Staff Present:

Wayne Ives, Instream Flow Specialist, Watershed Management Bureau
Kathie Fife, Instream Flow Environmentalist, Watershed Management Bureau
Lisa Fortier, Executive Secretary, Watershed Management Bureau
Steve Couture, Rivers Coordinator, Watershed Management Bureau

The conference phone line was not working.

9:30 – 9:45 Approve minutes of October 23, 2008 meeting

Introductions were made around the room.

Vern Lang – What about the Blanding's turtles? In the middle of page three there are inconsistencies in the draft report with the natural flow paradigm and Blanding's turtles. On the 2nd page near the bottom, the climate change comment should read "In the 1970's flood

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control projects were built and they often claimed to be protecting wildlife, etc. from over-bank flooding but were actually harming the natural flow systems.

- **Motion to approve the minutes with changes were made by John Magee and seconded by Vern Lang, all approved.**

The conference phone was not working so no one was able to join by conference call.

9:45 – 10:00 Repeat of General Program Update (3rd Party Review, Stream Gages, Assessment Methods)

Third Party Review

A third party review is being conducted by the Instream Flow Council, which is comprised of the states and some Canadian provinces. John McGee is the representative for NH. The Council would coordinate the review or selection and work with us on getting the review processed. We are working with limited funding so we are trying to make that work for all of the contractors who have to support the process and all the reviewers of the presentation of Protected Instream Final Reports for the Lamprey or the Souhegan. There will be a conference presentation which will have a question and answer period with the contractors followed by an opportunity for the reviewers to give us some feedback on what they did and don't like about it. We are looking for reviewers with a statistical or fisheries experience, or incremental methods backgrounds. That is intended to result in a report for each of the three, which we may summarize if money is available. The legislature would then review it.

Stream Gage Process

This in an ongoing process and we have had seven stream gages in over the last water year and eight more going in. One gage is on the Cold River may be an educational site like the one on the Contoocook in Alstead Village. It is fairly accessible to the public but is not in a high traffic area. The stream gage process is ongoing and we are improving the state's availability for data, especially designated river, and some for flood control but the Instream Flow Program is a strong component.

Criteria for Aquatic Life Support for 401 Water Quality Certifications

We are doing the development of documentation for public review, especially for the Water Quality Standards Advisory Committee, so that we have a documented process for evaluating flow needs for rivers or converse, which is the amount of water available from a river for water withdrawal permit requests under water withdrawals from surface water. That process includes ABF as a simple rule of thumb assessment. There is also the November 2000 Method that has been modified as the work force of the assessment for day to day activities. Finally, there will be the results of this process and pilot program, which is the resulting incremental instream flow method. That would be the final decision, which would result in Water Quality Standards. The results of the November 2000 Method would be interim place holders so that we have established numbers to get us through the period when we go to the instream flow method. That process is being written up so that people can start reviewing what we are doing on an

interim basis and eventually, with the culmination of this Pilot Program, the Protected Instream Flow Report.

Natural Flow Paradigm

I want to clarify some of the issues with the Natural Flow Paradigm. The name "Natural Flow Paradigm," as described by Poff, is a means of framing the Protected Instream Flow Program. The term Natural Flow Paradigm describes the idea that the biology, and to some degree the people who have developed hydropower and recreational expectations, expect a certain variability in the river, especially the biology that has developed under that natural flow. Within that natural flow paradigm the idea is not that we are going to force no active withdrawals on the river because there is significant variability on a daily basis from just the stream flow itself. This slide represents the Souhegan period of record for sixty-eight years. The red line on the center is the median flow value or the middle value of all the values in the sixty-eight years. On either side of that you have equal distribution. This shows you the range of 90% of the flows on a day-to-day basis. It is seasonal and this is where the natural flow paradigm incorporates certain timing aspects. In the summer we don't expect them to be high but we do in the spring. The key issue is that on any one day there is going to be times where the flow is significantly high or low. Our purpose isn't to describe a single daily level but recognize that flows can be higher or lower within this range of the natural variability. This leaves us some flexibility but we don't want to draw it so far down that we are out of the range of natural variability. Within the framework of variability there is flexibility. The natural flow paradigm isn't saying that there isn't wiggle room on a day to day basis. In the summer time when there are high flows we have some flexibility before we start having problems by getting out of the range.

So the purpose is not to make, on a day-to-day basis, everything be as exactly as it is without human interaction. We are going to have withdrawals of water that are going to reduce the availability of water in the stream but because of this variability in the historical flows we do have some flexibility.

Carl Paulsen – The problem with that is that you can choose a single flow around 400 or 500 cfs or less and you won't flat line the river and still be within that variability and there are the fisheries needs. If you are only considering the 90 or 95%, then you could flat line the stream, depending on your management system.

Wayne Ives – This is why we don't want to have a single minimum flow value representing [protection for] the year or a period within the year. Our process includes three levels and it includes durations. For each of the three levels, there is only a certain amount of time flow should go below these levels and as we get lower in the spectrum there is less time that flow is appropriately lower than these levels, based on the frequency analysis of the historical record of habitat availability combined with stream flow. The CUT curves show us the results of that frequency distribution. You can go below that flow level but not for very long. When we talk about the Natural Flow Paradigm it recognizes that on any one day there is a good range of variability, but you have to stay within that range. You don't want a system that only triggers at the bottom of the range. There has to be high flows as well. But when we get into the high flows, they are basically uncontrollable. Within the lower range—10 to 12 cfs—is where we have functionality regarding storage and release. The amount of water we can manage is very low.

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Carl Paulsen – If habitat, other aquatic life needs or other purposes, recreational or otherwise, were not the controlling factor in terms of minimum flow, then is there some other mechanism built into the system whereby you would still maintain some variability through the year even though you are not necessarily trying to meet certain habitat needs?
Wayne Ives – We are not trying to follow one of these lines. In the natural variability--within this you will see storm events will rise and fall--so that we end up with some variability within this range and that is how we end up with this multi-year pattern of percentiles. This year will then be divided up into biologically significant periods for fisheries, rare and threatened species and other species, the riparian vegetation and wildlife, so that there are certain periods of time that the flows need to have a certain duration that meets those entities criteria for life cycle support.
Brian Giles – That is a great curve and I understand what you are saying, but I looked a little closer at the scale under cubic feet per second and that is a large scale, a power function. [Flow quantiles are plotted on logarithmic scale.] What would that look like if it were drawn on a linear function for cubic feet per second?
Wayne Ives – You would see this [spring flow range] be a lot bigger and you would see this [summer flow range appearing] as narrower. I probably should throw one up there that shows it on an arithmetic scale because it shows that the variability is much narrower in the summer. There is a lot wider availability of water during the high flows than there is during the low flows.
Brian Giles – To the lay person that might be misleading. A technical person could get their head around it.
Wayne Ives – Yes, I found this and I had done it a number of years ago so I hadn't thought of all the nuances yet. I wanted to get the group clear on the natural flow paradigm. I think you are right and I should present this on an arithmetic scale [too.] The idea is that there is variability and a range within this and on any one day or season they are working their way through this range. What we need to do is make sure we have some flexibility that allows people to take water without getting us down into the lower ranges, especially for long periods of time. The natural flow paradigm needs to be understood as not trying to recreate flows that are not impacted. The flows with water use need to be worked so they are within the variability scale.
Jim McCartney – Are there any questions for Wayne on the natural flow paradigm or the third party review assessment process or the stream gages?
Steve Couture – As far as the assessment process, we need to outline the three procedures as far as we are going to go forward with instream flow analysis in the state. Also the Instream Flow Pilot Program required the state to do an analysis of the rivers based on the general standard, so basically an assessment of where the rivers are at with their water use and to report that back to the General Court. We are going to incorporate that methodology into our assessment and the listing methodology under our WQ reporting process. 2010 will be the first year it will happen. Any designated river that exceeds the water use for any given month will be potentially non-supporting for aquatic life. That doesn't mean that it is impaired but it is a formal red flag on our report that goes to EPA. By 2012 we will be able to use that technology on a state-wide basis, depending on how that technology comes forward.
Doug Bechtel – What is the timeline of the third party review?

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Wayne Ives – A lot depends on how quickly I can get the reviewers pulled together but we are trying to coordinate the completion of the Lamprey Program which means we need to get the report through the public hearing part of it. I am thinking that the public hearing and the finalization process are going to be in March/April. I haven't heard from the Instream Flow Council people. I sent them an e-mail a week ago and we are going to get back together and start working on the process and choose the reviewers but we are trying to find someone to do it for almost no money and take a lot of work on. I am looking to get them onboard by March and have them review it sometime after that. I don't know how long they would need to complete their documentation but we have developed some draft questions for the instream flow council to look at and critique who might be most appropriate for conducting a review on this.
Jim McCartney – The department has been putting together those questions?
Wayne Ives – Yes, I think I passed them out to chairs a few months ago.
Steve Couture – Ken Kimball provided some comment.
Wayne Ives – I know Ken Kimball did and I trying to remember who I sent that out to. I thought that we sent it out to both of the Technical Review Committees. I think it was on September 22nd. I will make a point of sending it out to the TRCs.
Jim McCartney – I think that would be great so people can look that over and provide some additional input. It makes sense for the Department to be a channel to the Instream Flow Council on that but there may be some additional questions from the TRC that you may want to feed into the queue.
Wayne Ives – I tried to use the comments from the Souhegan to structure some of the questions that will be in the review. We haven't done that for the Lamprey so there may be different issues that come up in the Lamprey that you want to tag on to that. I think a starting point for the reviewers was giving them an idea of scope and types of questions that we are going to have to answer for purposes of giving the IFC some idea of what the reviewers need to respond to.
Jim McCartney – Are there any further questions on the review process, gaging assessment?

10:00 – 10:30 Finish the Overview of the Draft Final Proposed Lamprey PISF Report Presentation

Al Larson – [giving a PowerPoint presentation.] He has extra copies of the handouts if you need them. Because of a telecommunications problem at the last meeting Piotr was unable to answer questions by phone. We will have to defer some of those another time. What they didn't discuss at the last meeting was an overview of public water supply and the portion of the report that Tom Ballestero did. He was also left out when the conference call failed. Tom did a comparison in the report for the protected entities versus the hydrograph for the Lamprey including lengths, averages, above average, three and five years, and the period of record. In the 1950's there was a legislative appropriation to communities along the river. That is a law that is in place that gives water rights to Durham and UNH, Epping, Lee, and Newmarket. Some of these are not in the designated reach. The discussion we had pertains to those public water supplies on the designated segment of reach. The town of Durham is a water user with a direct withdrawal upstream of the Wiswall Dam. They have two other water sources, the Oyster River and the Lee Well. They alternate the sources depending on water

availability and demand. Their daily water consumption can go from 10,000 gallons per day to close to 500,000 gallons. The demand increases when the students come on campus.
Dave Cedarholm – That should be about twice what you said and at times well over a million gallons a day between all water sources.
Al Larson – The existing 401 certificate has these limitations relative to water use. There are ranges of flow in which the University and the town can withdraw water from the Lamprey River. Once you get down into the low flow range, below 13 cfs there are restrictions on how rapidly you can draw down the impoundment. This is under current negotiation.
John Magee – Is that correct in the last bullet, no more than 1/2 inch in 24 hours?
? – That is correct.
Steve Couture – That is one of discussion items.
Al Larson – There is a requirement to monitor the water levels upstream of the Wiswall Dam and downstream, which the Packer's Falls gauging station monitors. There has been discussion about establishing a monitoring point upstream. As a result of that not being established, the town and UNH are not withdrawing water when the flow drops below 45 cfs. There are couple of ongoing investigations and one is to look at the development of another ground water supply and operating that individually and considering withdrawing from the Lamprey River, using that withdrawal to artificially recharge that aquifer so you can change the timing of the withdrawal from the rivers to allow you to withdraw from the river during high flows, recharge the aquifer and then use the water from the aquifer during periods of low flows. That is what we are aware of.
Dave Cedarholm – That is pretty accurate.
Al Larson – There is one other water user historically and they have a proposal that has been approved and would change things to a certain extend. Newmarket utilizes groundwater. They have in the past withdrawn water from a number of tributaries to the Lamprey and from the Lamprey River itself. Those were abandoned due to water quality issues. In talking to the superintendent, they still reserve the right for emergency use but they have not been actively using the surface water withdrawals. The Town of Newmarket did receive approval of a groundwater discharge permit in which they propose to withdraw water off of the Lamprey River and recharge the Newmarket Plains Aquifer. That would have a maximum discharge of 500,000 gallons per day. The assumption being that they would have an intake on the Lamprey River and that would be either in the impoundment behind the Drown Dam or they are looking at a point in the river in Lee to recharge their aquifer. That discharge has been permitted by DES. The preference would be the Lee withdrawal point which would be upstream of the Durham withdrawal as opposed to the McCallum.
Brian Giles – Do you know where this withdrawal point is?
Al Larson – I haven't seen it on a diagram so I don't know exactly where that would be.
Wayne Ives – I believe it is generally where there is a sharp bend in river.
Dave Cedarholm – I believe that it is close to the "S" turn in Route 152.
Al Larson – As part of our overview of the water supply situation, we are not proposing a specific PISF for the public water supplies. This will be further evaluated, recognizing that the controlling factors are aquatic and RTE protected entities. This is

going to be further evaluated for the water management plan process and as part of that process we will be looking at developing conservation and water use plans for the public water supplies and other affected water users. In a comment that we did receive, and we were going to include in the report, under the River Protection Management Chapter 483, there is a provision under that which states during emergency the Commissioner can declare an emergency situation and public water supply users would be granted access to the river in an emergency situation. That is not included in the report or executive summary presently but will be included in the report.
Brian Giles – What is defined as an emergency?
Al Larson – I will refer back to 483 where it says "an emergency". I don't know how that is defined within flow duration and magnitude**.** I will have to refer back to 483. It would be drought conditions established through the Drought Management Plan action levels.
Jim McCartney - Steve do you have language right there?
Steve Couture – It is in 483:9-c, paragraph four, "protected instream flow levels established under this section should be maintained at all times except when inflow is less than protected instream flow level as a result of natural causes or when the Commissioner determines that a public water supply emergency exists that affects health and safety".
Jim McCartney – It is not further defined in the rules?
Steve Couture – No but there may be some cross-referencing to do with the Drought Management Plan. The governor can also make that determination there as far as public health and safety.
Al Larson – In the handout we provided there is a response to comment on that.
Wayne Ives – If there is a fire or a water supply issue a lot of this stuff goes out the window.
Steve Couture – The Water Management Plan would outline what needs to occur before the decision is made and that there is a public health and safety concern as well.
Carl Paulsen – There were a lot of discussions about this early on in the process, one of which was about a manufacturing plant that runs off of a public water supply that has fire suppression system on that water supply. How do you manage that because you can't cut business off entirely?
Al Larson – We recognize that. It is not included but it will be included in the next revision. The task that Tom Ballestero at UNH was given was to take the PISF values for the various entities and do an analysis and compare those with selected hydrographs that were analyzed. That was within the last 5 years, the wet 3 years, average 3 years, and the dry 3 years. There are a number of tables and the first was recreational flow. We had determined that the cfs necessary to support running the river by boat or kayak was 275 cfs. We took 275 and the number of days where flow on the river exceeded 275 cfs for these periods. What should happen if we go from a wet 3 years to a dry 3 as a comparison is that flows greater than 275 cfs are less frequent during the dry 3 year period than the wet 3 year period. If you take the average 3 years flows were greater than 275 cfs 37% of the time. This shows you that relative to the period-of-record that for a fair amount of the time flows are greater than 275 cfs and there will be opportunities to float the river or paddle the river through the designated section.
Doug Bechtel – Is this broken up by season or is it straight.

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Al Larson – If you look at the Lamprey hydrograph you would have opportunities during the spring and the fall unless there is a significant storm event in the summer that brings the flows up. We looked at the protected entities that Lee [Carbonneau] identified and in this case it is the vernal flood plain pool. Tom looked at the situation where the discharge would be less than 1,500 cfs. What you see here represented percentages and close to 50% of the time the flow is close to this which would support the vernal flood plain pool.
John Magee – All of the numbers are basically 50%.
Al Larson – One explanation is that the 1,500 cfs is a low number
Doug Bechtel – That is seasonal.
Al Larson – It is the same for the wood turtle. Flows less than 500 cfs and the percentages are very high. Based on the period-of-record that we are looking at here is June 1st to October 15th. In the case of the wood turtle it appears that the proposed PISF is protective for the majority of the time.
Vern Lang – Did Tom do a similar analysis for a fall and winter PISFs for the turtle?
Al Larson – I don't know and I will ask Lee to check that. Piotr presented a PISF for fish and this is a portion of the complete table that he presented, using this as an example, rearing and growth have some of the lower PISF flows. He then did analysis using these numbers. There is a correction and in the original presentation he included just Piotr's tables and forgot to include the results of his analysis. The key thing is the note at the bottom looking at the 3-year average flow record, which was 1990 to 1992, based on this weighted average analysis that we did. Whereas in the previous slide you would have actual flow values that are daily flows and durations. Tom then took those flow values and compared them to the hydrograph, the average flow record. The number listed as flows are the number of times in the record that the PISF is not met and the number is the listed duration. In the flows, 204 is the number of times during the 3-year period that the PISF wasn't met. For the duration, he added up the number of days and was able to determine, n a cumulative fashion, he years that would represent for that three year period of time. What we see here is focusing on the rearing and growth, which we just showed for the 204 days. This is a 94-day period we just did for the rearing and growth period and not the entire year. The number flows are listed in red, to hydrograph for the duration, and then we added up number of days.
John Magee – If you go down to rare flow for rearing & growth, 70 times that PISF wasn't met for the rare flow and that is 70 days so 25% of time rare PISF isn't met during the typical year?
Al Larson – Yes. Let's see what happens when we go to dry.
Carl Paulsen – Just because it goes below that flow doesn't mean it has exceeded the allowable duration. What it doesn't show is how many days it was beyond that duration. There were one or two years that it went beyond that but it was for only one, two or five days.
Steve Couture – One day out of this three year period?
Carl Paulsen – One year but we just don't know how many days it triggered that.
Al Larson – During low-flow conditions, it is greater frequency and also greater duration so the message here is the PISF value when compared to the average and to the low flow record. It changes based on the hydrograph that you are looking at and the reality is during low flow periods there would be a fair period of time that the flow would be below the PISF for riverine growth. The whole purpose of this exercise was

to look at the bio-periods of the protected entities. What are the necessary flows to protect these entities? This is the check between the PISF and the hydrograph. We compared the two and there is a period of time where we would have flows below the PISF.
Vern Lang – For the duration, am I reading that correctly, three years out of three years?
Al Larson – Yes. This is the low-flow record and the extreme low period. There are actually a couple of low-flow periods in the period of record and that was a question but this is a fairly representative period where you have long durations of flows.
John Magee – This was a three consecutive year period but there probably other years where the flow was actually lower.
Al Larson – That is right. The question is why did the three-year period not include the 1960's drought Period? Imbedded within that 30-year record there are a period of droughts. When UNH examined this they found that the 2000/2002 period was also a significant period of drought. They thought by including that period that it was representative of a low flow.
Mike Kappler – You will be adding those to the draft?
Al Larson – Yes. These are actually taken from the draft report and they are new to the presentation. The copy that you have of the previous presentation does not include these two slides but we will make that change.
Robert Flynn – Will the three year period low-flow period of 2000-2002 also analyzed within this?
Al Larson – It wasn't, they selected '64 – '66.
Lee Carbonneau – Tom did an analysis for the wood turtle for winter flow requirements. In dry three years it was met 75% of time and in the average three years it was met 100% of the time. In the wet time of the year it was 92% of the time. In the last five years it was been 80% of the time. This is on page 167 of the draft report.
Al Larson – We did this analysis because these are existing limitations because of the 401 certificate, not because these are proposed PISF values for the town of Durham/UNH. I want to clarify that. We are not establishing the 401 limitations as PISFs for UNH/Town of Durham. This is just an exercise we ran through to check and see what would be the impact.
Steve Couture – Did you do analysis of how the PISF would affect it?
Al Larson – No.
Brian Giles – The term "only from storage" is probably not correct because there are alternate sources for water withdrawal. It is not storage.
Al Larson – The final recommendation we are proposing is that the protected PISFs be the fish PISFs relative to controlling the flows. There is also a recommendation based on the period-of-record to control the flows and not go below 4 cfs. That was primarily Piotr's recommendation. We have additional conditions based on work that Lee did. The primary PISFs are the flows derived for the protection of the fish and then there are these special conditions relative to the work that Lee did for certain RTEs, plant communities and habitats. The idea is that the PISF will be maintained by implementation of the Water Management Plan.
Dave Cedarholm – Can you state again #2, "the flows no less than 4 cfs"?

Al Larson – In the hydrologic analysis that was done the lowest flows were around 3.7 cfs and it was Piotr's opinion based on his work, MesoHABSIM, and the fisheries work that flows not be allowed to go below 4 cfs. That is one of the final recommendations.
Dave Cedarholm – If the flows do go below 4 cfs naturally what happens? Does someone open a dam upstream?
Al Larson – Provisions within the management plan would go into effect.
John Magee – That is sort of misleading. Flows naturally do go below 4 cfs so that implies that there is some action to be taken to support the identified protected entities that would be at risk at flows below that.
Vern Lang – Does #2 show up in any of those tables?
Al Larson – This is the absolute lowest flow, so not explicitly. I don't believe that Tom did a hydrograph analysis relative to that.
John Magee – That is 4 cfs as measured at the USGS gage? That is a 183-square mile watershed. I am dong research in northern NH and low flows in some of those streams are 2 cfs. That is less than a two-square mile watershed so it is roughly 100 times bigger than that, so 4 is an immensely small number. I don't know if that is natural. That is water getting sucked out. Human use of the water would obviously be implicated in that?
Steve Couture – If you look back at the table the lowest cfs under the rare is 16 cfs. Measures are well in place before we get to 4 cfs. It is really looking at the historic record and saying we had one out of this that came below 4cfs and that is the extreme of the natural condition.
Vern Lang – When you look through these tables the same issue is happening on the Souhegan. You have low flows and the duration attached to them. What you do three times in a day or three days in a row (if you are less than the duration). This would be where your protected flow would be in reality 4 cfs and 180+ square mile drainage area because there is nothing to prevent water withdrawals that take it down less than those durations.
Wayne Ives – Part of the Water Management Plan would be to flatten and distribute water use so people can't purposely try to subvert the rule for the protected flows with short, high-rate withdrawals that don't meet the durations but cause a significant draw-down. The Water Management Plans would incorporate some limitation so you can't purposely find that niche that is one day less than the duration.
Vern Lang – The way it is set up there is nothing that would stop anybody from doing it.
Wayne Ives – There isn't except for the Water Management Plans for the water users.
Steve Couture – The water management plan is enforceable as well.
Wayne Ives – I see what you saying that there is nothing in here that would disallow that but the Water Management Plans certainly would. We don't want to encourage people to find loopholes just because we haven't blocked off every exit. What we want to do is reduce the demands and removal of the water and spread it out and make it flatter with longer durations at lower rates. Unfortunately, we can't do these things simultaneously, we have a limited process. We have to have the science first and then the policy part of the water management plan, which is somewhat scientific, but largely it is a decision making process. The possibility that [large short term withdrawals] could happen is available in the protected flows if someone decides to pump for several days at a high rate and then stop pumping when they know they are reaching the point

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of exceeding the duration and everything would reset. That could happen under the protected flows alone and that is why we need to have Water Management Plans to incorporate rules for the water users so people don't cheat the PISF. This is why we need to talk to the water users. They may need to pump more on some days but should not pump it all in the first two hours of the day and nothing in the rest of the day. The flows should be managed to be flatter and broader and not cheat the PISF. That is something I had concern with too. It is not something we can address to cover every situation until we get to the Water Management Plan. The intention is to not allow water withdrawals to use the protected flows as a guideline for taking everything else that is available without consideration of the impact it might have.

Al Larson – Several comments that we received on the last presentation on the perceived conflict between water management and the natural flow paradigm. These additional conditions are being recommended as a guide. In the future, if there are changes in water use or water management we recognize that there are these protected entities and these flows are necessary but we are not proposing active management be done.

Lee Carbonneau – Vern noted at the last meeting that there were several locations in the report where it implied that we were going to manage high flows and protect nesting turtles. In looking through sections in the report there were statements in there that might lead one to believe that is what we are proposing. We have made those edits and added a section to the introduction that describes the odd circumstance of having some kind of a dam release or management activity that would cause a high flow that we recommend against but not an active management to control naturally occurring flood events.

Steve Couture – Is it safe to say that these are mainly set up so that if management scenarios change on the rivers system to more of a high-flow skimming approach versus the flow withdrawal approach that is in place now. This would be the protective measure, is that correct?

Lee Carbonneau – Yes, some of these high flows do need to occur at a seasonally appropriate times and skimming during those times could be detrimental.

Al Larson - One of the challenges, both with the Souhegan and the Lamprey, is the complexity of what we are trying to do here. We are looking at several different species of organisms that have different periods in which they are sensitive to flows. Trying to winnow this down to a number is very difficult. I can understand the challenge from the reader in trying to go back through tables and try to interpret things. We are hoping in the next revision that we have addressed that. One of the suggestions was to show a plot or a hydrograph with the protected instream flows shown.

We attempted that on the Souhegan, which was more of a problem, because what you don't want to show is that a protective instream flow is for a given bio-period because it flat-lines the entire bio-period, which is not the case. [The protected flow magnitude] has a duration associated with the flow. We attempted to do this in the Souhegan Report. The response that we got from readers was that it made it even more difficult to understand and the intent was to make it easier. In reading the next revision of this it is still somewhat unclear in that it needs to be simplified or graphically portrayed. Please provide that as a comment. We are struggling with that because we are struggling with a number of entities with a number of different protection levels.

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The take-home message is that we are recommending that fish PISFs be the primary PISFs.
Doug Bechtel – Following on the fish idea; that is because under fish many of the other PISFs are captured.
Al Larson – Yes, that is because the fish PISFs are also protective of the majority of these RTEs.
Doug Bechtel – Maybe putting a bullet list under statement #1. That is a clear point for those who aren't living in this science every day. Maybe a statement that says the fish PISFs capture all the others.
Lee Carbonneau – There is a built-in resiliency to some of our wildlife species because they are air breathers and not quite as sensitive as fish would be and the plants have a built-in resiliency with dormancy and seed banks. Over the time, even if their full values are not captured by the fish, their survival is likely.
Doug Bechtel – The protected flows for fisheries are greater than what is needed for other species.
Dave Cedarholm – What that slide is saying is throughout the winter period we need to maintain flows of 130 cfs for wood turtles and at some time during the winter the flows need to exceed 500 cfs for herbaceous, low riverbank species.
Al Larson – Right.
David Cedarholm – If a community is stripping flows in the winter and the flows drop below 130 cfs at any point, they need to stop.
Doug Bechtel – That is a mean so you can go lower than that.
Al Larson – That is the intent but if there is a change in water use we recognize that there are these protected entities that are sensitive to these flow conditions.
Steve Couture – If I am looking at the right chart, 130 is a little bit greater than your critical flow for fisheries for the PISF in the early winter period?
Al Larson – Referring back to the Souhegan Report, there was an attempt to show the hydrograph, the bio-periods and the PISFs. As a minimum, we showed controlling PISF for those bio-periods and that is somewhat misleading as there is a flat line across that bio-period. It has a durational component and the only thing that could be done in reference to that graphic is that the durations are not shown.
Doug Bechtel – You are showing thresholds based on our decisions on top of a hydrograph, which is not based on our decision, which is risky.
Steve Couture – It has the possibility of sending an incorrect message.
Al Larson – It could be misinformation.
Steve Couture – Anything relevant to the protected flow should be specific clear.
Al Larson – It does represent a threshold and if you drop through that threshold, and depending upon the duration, then it kicks in. If you go to the Souhegan Report you will see where colored lines for the common, critical and rare were plotted, yet the durations were not [shown so it's not entirely] correct. It is a graphical reference of the information shown here.
Steve Couture – It seems like that in the Water Management Plan itself the breakdown by bio-period, duration and the action is going to be taken so the users should be able to identify when their action will take place and we need to find a way to communicate that.
John Magee – The water resources aren't infinite. Are water users required to figure out how not use too much water and is that something that is going to be incorporated?

Wayne Ives – There is a water use component to this that describes the conservation component to reduce the overall amount of water. The real issue is that by development of protected flows in the Water Management Plans people recognize that there is going to be an issue with water use and we have seen responses already. There is a company that is moving their plant and they have purposefully chosen a spot down-gradient of the waste water treatment return so that their withdrawal is going in upstream of their withdrawal. Their withdrawal is actually going in below where they make their return and so the consumptive use disappears. This drives people to select locations where water is available to begin with--based on information provided using the annual water use versus stream flow assessments. This also directs people to look for low water demand technology. There was a tee shirt company that stopped using their water intensive equipment and bought other equipment instead so they didn't have [a water] issue.

John Magee – I was thinking of individuals and not just entities.

Wayne Ives – We have limited ability to influence individual water use but public water supply conservation plans would include some sort of public information and outreach that might improve the amount of water used especially during peak demand times. The problem isn't the daily use but the double and triple demand during the summer peak so those rate structures and outreach activities are designed to reduce the peak demand that only occurs during short periods of the year but the public water suppliers must try to provide that availability year round which raises their costs.

Steve Couture – The thought of too much water is expressed when it comes to implementation of a water management plan where the water user recognizes the significant management plans that they may have to put in place because of their water use. That indicates too much water use and they have to react in the future after the PISF is established then the potential water user will have a baseline understanding of what is too much water use because the Water Management Plan will be in place and those measures will already have to be enacted and it will be amended to include them as part of it.

John Magee – I am thinking landscape use. If we paved the entire watershed the flows would be way down in the summer and potentially there could be no water for any of the users. Are there opportunities to include that or consider that in the Water Management Plan?

Brian Giles – It is being done in the UNH and in the Town of Durham. Dave can speak about this better than I can but we are trying to develop awareness through public outreach on water use in low flow areas as well as leakage within the water system itself. We have initiated it but it has reached the level we would like to see it and I think the instream flow rules are going to bring more action about on that.

Dave Cedarholm – It is ultimately economically driven and I think all communities are realizing that water is energy and that energy is money. The only communities that aren't that required to develop water conservation plans are grandfathered communities that haven't developed a new water source since recent rules were adopted that require water conservation plans with the permitting of new water sources. Durham is in the process of permitting a new water source and that is driving the development of the Water Conservation Plan. I think that for the first time towns like Durham are realizing how important those Water Conservation Plans are, not just because it saves water but

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because it reduces the towns cost and people are realizing their water use has an effect on their water bill.

Wayne Ives – I think tying your water use to your bill is a good idea. There were companies in the Adirondacks that had a flat rate and it didn't matter how much you used so people used it for everything. We are recognizing the value of the resource by trying to use it appropriately. It is now being recognized that it has a value and is a finite resource. There are a number of reasons why people are starting to say we need to change activities to make more water available. It is a shared resource--Newmarket now wants to withdraw water, the existing withdrawal from Durham, and there will be other demands over time. We need to find ways to reduce consumptive use and also make the effect of consumptive use, like impermeable surfaces--reduce those impacts so that the water is available at the appropriate times and places for both our use and the instream uses.

Carl Paulsen - I heard at one of the town meetings that we should be land-applying our waste water treatment facility to recharge water or along the same lines or limiting impervious surfaces. There ought to be some incentive to make that part of the management plan with some sort of land-use control regulatory approach that would have that benefit. But if you have adopted that and you still end up going below the protected flows, do you still have to abide by use controls? How do you build an incentive in that way?

Wayne Ives – There are a number of things driving the Instream Flow Program. There are impermeable surfaces and wastewater treatment discharge issues as flows in the river go down and constraints on discharges go up there is a bigger interest in [sending] discharges to groundwater because they tend to be less stringent so there is a cost savings and a potential for a recharge to recover the impacts of impermeable surfaces.

10:30 – 11:45 Response to Comments Received and Discussion of what will be Done in the Report

Al Larson – One of handouts provides comments and responses to those comments. We have been soliciting comments and we would appreciate if you would provide us with written comments. I've received comments from Vern Lang, Ken Kimball, Robert Flynn, and Dave Cedarholm. Getting written comments allows us to have a record and create this document where we contract the comments with response. Vern had provided us with hand-written comments and we had conversation. Lee will address changes to the report to reflect those comments. Ken Kimball had a broader issue comment which we are going to be addressing. We had received specific comments from Rob and Dave. What we handed out is our response to their comments. Wayne, do you want to have a document on the FTP site which becomes a rolling dynamic document?

Wayne Ives – I should ask the TRC but I am willing to support that.

Al Larson – What may happen is people will not see others comments and responses to those comments. It eliminates redundancy and may raise other comments.

Wayne Ives – We will put that out again on the FTP site. You have all been given instructions on how to get it off of the FTP site.

Al Larson – One issue is the error of uncertainty. Any kind of exercise that you are going there will be some error or uncertainty with it. What we are proposing is to add

section to the report following the proposed instream flow values, in which the response that you see here will be incorporated into the report. We are actually going to create a new section of the Report because in the previous version this information wasn't provided although there was some discussion within individual sections as to the validation work that was done. This is qualitative and there was within each of the assessment some evaluation of error. In our response the point was that as part of the MesoHABSIM process they did some verification as part of that. Can we do a full-blown sensitivity analysis? It is not typically done for these types of studies and it was neither proposed nor do we have the budget remaining to do that.

Wayne Ives – Of the two verbal comments from last week, one was Vern's regarding the wood turtle as an example of not matching the natural flow paradigm. I don't know if we responded correctly to that but we have discussed it today. The idea is that we are documenting that the intention is not to manage those [naturally occurring] high flows but to make sure that we don't create those flows with any of our own [management] activities. I think we have done a good job of responding to the report revision. The other comment was Ken Kimball's regarding the location of the protected flows all being together with a clear description of how that would be functionally applied and I think that at the end of today's presentation it gave a description of how that worked. I believe the report revisions are now in the Executive Summary with the documentation of the fish flows, riparian wildlife and vegetation criteria and the protected flows for recreation. Al, in response to the other written comments on the error analysis could you hit the highlights and summarize what has been done and what needs to be done.

James McCartney – Not only what the response is but any anticipated changes that will be in the report.

Al Larson – That will be incorporated into report.

Wayne – That includes the appendix?

Al Larson – The Appendix 6 already exists. There will be the new section within the main report at the very end addressing this. It gives the reader an understanding of the selected period-of-record for screen flow, current condition versus the baseline condition and includes a graphic between comment 4 and comment 5.

Wayne Ives – We had a question about the 30-year period from Robert Flynn.

Al Larson - There are two ways we are going to respond to comments. One is making changes to the report in response to the comment. The other way is just responding to the comment and there will be no change in the report. Piotr may be the best person to discuss question #2. He has provided a response to the comment relative to the dynamic nature of the affected habitat. I don't believe that will necessarily lead in a change to the report. Regarding the comment on the selected period of record for stream flow; Jennifer Jacobs from UNH did that analysis and I asked her to respond and this is the description she provided. Unless people felt it was necessary to get into detail in the report this will be probably be a stand-alone response to comment. Rob, take a look at it and see if she has answered your questions relative to that or if you need further clarification. There were also several comments, with some verbal, relative to the current condition versus the baseline condition. Piotr responded to this. He included this graphic between comment #4 and #5. In the early part of this process there was a target fish community proposed and agreed upon. The intent was to identify those species that would be representative of the river. What he shows in this plot is the Upper Lamprey. There is a thin line representing Atlantic Salmon at the top of the

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Upper Lamprey and they go down in order and at the bottom is the common shiner. You have the Upper Lamprey, the Lower Lamprey, which is dominated by impoundments, and then the target fish community. What we are trying to do is provide protected instream flows for the target fish community. There is an impact by the impoundments and we recognize that the impoundments are there and having an impact on the fish community but the protected instream flows are believed to protective of the targeted fish community. It is a recognition of what is there and should be there based upon analyses.

Brian Giles – What should be there with the impoundments in place or not in place?

Al Larson – What should be there based on representative rivers without impoundments.

Robert Flynn – That is a question I asked last time. Without impoundments, is it a fish community that should be upstream all the way up the tributaries?

Al Larson – That is my understanding.

Wayne Ives – I think the thought process was there that the impoundments were relatively impermanent [centuries] and that they might be removed but are not necessarily going to be, and may be there forever, but the idea is they did the assessment without the impoundment that it wouldn't be correct but if you did it with the impoundment it would result in trying to developing protected flows [in a river without habitat] to meet flow needs for the reference rivers [that do have habitat.] The impoundments are there, and may or may not stay there, but the protected flows need to describe what flows are needed to maintain that river with the habitats that would be available if the impoundments weren't there. That doesn't mean that the impoundments have to come out in order for those flows to function it means that the protected flows support the river, with or without those impoundments. The baseline conditions need to be understood in order for us to develop a flow that describes the river needs and whether the impoundments are there or not doesn't change that.

Al Larson – There was a question of flow management and the natural flow paradigm. There was a statement made that there might be a conflict between water use and natural flow paradigm. They are not necessarily mutually exclusive and the minimization of flow alteration is the object goal. We do have water uses in place and other features within the drainage to which they had an impact. I guess the concern was more along the high magnitude but we do raise the flag to extreme low flow events and that actions may be needed relative to that. As far as the comment on land-use change, we haven't accounted for land-use change explicitly as part of this analysis. This wasn't necessarily a computer modeling simulation where you can change land-use to generate different run-off numbers based on the analysis that UNH did using a program called *Indicators of Hydrologic Alteration*, which is a great package that was developed by the Nature Conservancy. It is a powerful tool and UNH ran the hydrograph to identify periods of change. A major change that was identified was the pre-post management change with the dams on Lake Pawtuckaway. We didn't look at that explicitly but we know that there is information out there.

Wayne Ives – Have we sent David [Cedarholm] the data he was looking for?

Al Larson – That is in the next question in the response. If you need more detail ask Jennifer or Tom. The question was last week: "What are impacts of dams?" Jennifer Jacobs then provided a response on this. I will show you an example. It isn't quantative but it does show impacts. On the next page there is a plot from 2004. The

information that is plotted here is the precipitation, probably from the Durham station. On the bottom you see the rainfall events and above that, with the squares, is the Oyster River and above that is the Lamprey stream flow. These are normalized, relative to the drainage basin area, so there is no difference there. As you are reading from left to right, you see that when there is a rainfall event flows go up on the Oyster, which is something that didn't happen on the Lamprey on that particular case. You can see that the Oyster is declining in a gentle slope, receding, but then there is an up-tick on the Lamprey River. If you go to the next page on 10/12 there is a description, there is a description for 10/12/04: "pulled four logs, fish guys on site." I don't know if they pulled the logs because they wanted more water but what you see is an up-tick in the Lamprey River Flow and nothing is happening on the Oyster River. There is another event and you see that they both responded to larger magnitude rainfall. If you go a little further in October, after 21st, where it says they pulled the five logs: What happened on the Lamprey River? We see an increase in flow and we don't see anything on the Oyster River. If you look on 11/20/04 there is a really tiny rainfall event but nothing happens on the Oyster River. On 11/18/04 it reads: "pulled four logs" and then, "we need to fix the lower part of the lake gauge." What you are seeing is the difference between how the Lamprey and the Oyster Rivers are responding relative to these discharges from Pawtuckaway. It is probably not as quantative as Dave would like, and we could probably generate that, but this gives you a general idea of the magnitude of change. It does have an impact when they release water from Pawtuckaway in the fall. There was a comment relative to climate change. It was not proposed and we did not look at the impact of climate change on flows as part of this analysis. We recognize that there is the potential for an impact and Piotr thought that it could have an impact relative to the impoundments. The habitat conditions were probably relatively warming but we do recognize in the literature that there is more variability and higher magnitude flows but we didn't do an analysis. We are not denying that climate change would have an impact but we have not done a quantative analysis. What we are seeing in highway design it that they are starting to require some estimate for the impact of climate change on the design of structures. Some of these structures will be there for forty years and within that timeframe you will see an impact for climate change. This is what is being debated not.

Jim McCartney – The slide that you had up at the beginning of the meeting today with the 60-year period of record, with the bands and median flow over the course of the year, the expectation, with a fair amount of certainty, is that those bands will shift in upwards and downwards direction over time. What is a little less certainty is whether there is going to be any shift overall in the placement of those bands in either an upward and downward direction, or where that mean falls. There is less certainty over that, but a high degree of certainty, that the lows are probably going to get lower and the highs are going to get higher for any particular day of the year.

Al Larson – I think what we won't know until we have another period of record is if these four years are an anomaly, or are they indicating a change?

Wayne Ives – That is why we need those stream gages.

John Magee – I liked Dave's question about climate change a lot. This seems like a perfect place for a university professor to find funding for national science project. I know it beyond the scope of what you did here.

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Al Larson – Dave raised an important point. We talked about this earlier in the presentation. We will be including a statement within the report reflective of the provisions under 483 relative to emergency use for public water supplies along the designated segment. That is not in the report or the Executive Summary now.
James McCartney – Are there any questions on the responses to the comments received?
Dave Cedarholm – I think without a sensitivity analysis, even though it isn't budgeted, it may be difficult to convince the academics at UNH that this was evaluated and verified.
Al Larson – We are hoping that the third-party review will provide that check.
Dave Cedarholm - I want to thank Steve Couture for sending that section of the Souhegan Report on the verification because that convinced me that further review is needed. The results of the verification were not very conclusive in my opinion.
Al Larson – That lends further support for the third party review.

11:45 – 12:00 PISF Public Hearing Planning and Schedule

James McCartney – Are we ready with the changes on the report to go to a public hearing with the report and when and where we will hold it.
Wayne Ives – We need to hold it somewhere in Lee or Durham as one of the designated river towns. We would like the notification to go out towards the end of this month so the thirty-day comment period results in a hearing in the beginning of January, after the holidays. We have the thirty-day review period beforehand and the and thirty day review period after so that time period is available for any other comments or discussions, as well carrying on with the comment process on the FTP site. I need to send rules on the file naming conventions to keep it structured so we don't get befuddled by the submittals. I think we need to structure that to keep track of where, over time, the discussions go. As far as the public hearing is, where is the committee on deciding if it is ready or not to go before the public? It doesn't have to be perfect at this point because there is a window for additional comments and responses. We have tried to respond to what we have received so far for comments with revising the text and producing a written document that says what we are doing or have done as far as the people who have submitted comments. I am looking for a decision from the Committee as to where you feel it is. I would like to go forward with the TRC supporting this version of the report as revised.
Carl Paulsen – When is the final report to the NH Legislature due?
Wayne Ives – It is due October 2010.
Carl Paulsen – They need to be in effect for a year. Is there a time between when the report has to be in and how much time you need to develop that report?
Steve Couture – We have to have public hearing in January if we are going to meet our deadline.
Wayne Ives – We need the protected flows so we can work on the water management plan. We need to know what the final comments will be. I haven't heard any comments on the actual numbers.
Carl Paulsen – I see some big issues and questions that we need to wrestle but I think it is beyond the scope of getting to a public hearing. I think we need to go ahead with it.

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I would love to delay it to work out some of these issues a lot longer but it does help us get to a practical application of this and, given the timeframe, it needs to go.
Steve Couture – Our legislative deadline for adopting the PISF and the water management plans is October 1, 2009 with the Report in December 2010. We can't move forward beyond the pilot projects until we submit that and we requested an extension. This is not the first deadline. It was a two-year extension.
Carl Paulsen – We could put it off another 15 days, but it won't help us.
Wayne Ives – I think the purpose of the TRC is to advise the Department on process oriented things. So far the comments I have heard have been important changes but I haven't heard that we should have done something differently or used different numbers in the inputs that would have resulted in different results. We have run the process we have selected and we have done a decent job of doing it in responsible manner. The question is: Can we take that result and take it to the public hearing?
Steve Couture – I think we are asking the TRC to support going forward to the public hearing knowing that they still have 60 days to provide comment on the document and we would still have to address those comments before we adopt the PISF. There are internal deliberations once the hearing process closes, we have to respond to the comments and the Commissioner has to be comfortable that we have addressed the comments sufficiently before it becomes adopted as part of the state WQ standards but we need to go to the hearing in January.
John Magee – I am ready to go but I don't think that anything is perfect. There is a lot of data we are using, in particular for the fish, and we are using things that have been used elsewhere. There is a lot of disagreement between fisheries scientists and statisticians as to what is the best thing to use. From what I have been hearing from across the nation and Canada, is that not everyone believes in MesoHABSIM but also not everyone doesn't and going forward here doesn't preclude using other tools in trying to determine PISFs on these two rivers now and in the future. What we use on the Connecticut River may be very different from the tools we are using now on the Lamprey.
Carl Paulsen – Within the rules or the statute it doesn't bind us to MesoHABSIM or any specific analysis. It does say we have to do analysis but doesn't say what it has to be. Do we need a motion here?
Vern Lang – I am essentially at the same place as a year or two ago on Souhegan. Intuitively the results that I am looking at here don't make sense to m and I see a number of apparent inconsistencies in the data. For instance, the fish curve showing a very low end of the flow range, up to about .2 or .3, and then these fluvial dependent and fluvial specialist species show either a flat response, or no response, to flow increases above that point or, most commonly, they show a negative response. We have other data in the report, and most importantly in this case, the invertebrate curves show a typical response that they generally increase habitat availability and suitability with flows up to 1 cfsm. There are other issues that are parallel to that in the report. If I were in the Department's shoes I would want to have the peer review done before I went to the public hearing with it. I think that would be the best approach. You have some real constraints with the schedules that you have to meet. That is pretty much where I got hung up after the review on the Souhegan.

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John Magee – I have to be objective but you and I agree about a lot of this stuff and I agree that if we have the opportunity to have the third-party review done before the public hearing that we should take it.
Steve Couture – That is not going to happen.
John Magee – There are 13 other rivers and I am optimistic that things will steadily improve.
Wayne Ives – The MesoHABSIM process isn't the same as some of the processes that have been used in the past because it looks at the river reach-wide as opposed to P-HABSIM that are specific to a cross-section, or a series of cross-sections and show more response because they are limited in their extent, whereas the MesoHABSIM processes recognizes that habitat doesn't disappear so much as it shifts. There is a flatter response curve to this. To me this is the reason why habitat in a river, unless you get to the extremes of very high or very low flows, doesn't disappear, it moves form place to place. I think this is a benefit of having the MesoHABSIM process as opposed to some of the other techniques that look at cross-sections and then extrapolate them to a river-wide process. MesoHABSIM looks at a stretch and then extrapolates a much smaller expansion.
Steve Couture – Before the consultants were selected they identified what methods they would use to establish instream flows and the TRCs and the Water Management Planning Advisory Committee's were involved in that selection, which also involved the selection of the analytical approach that would be used. I don't disagree with you that a peer review would be great to have but unfortunately we established the analytical process in the beginning. We selected with input from outside entities and we have now implemented that and through the initiative of DES we are going to do a peer review process to verify what we have established using this methodologies is correct, or if there are deficiencies, how do you improve upon it in the future.
Wayne Ives – As a result of this, we will take peer review and ask if something was missed. If that happens we may have to back to square on and scratch a lot of the results if we completely botched this. If it is within the realm of reasonable, fisheries studies rely on a small population of data collected over discrete intervals. We are looking at statistical and modeling issues here so we are looking at a wide range of interacting inputs that have to be involved in this process. The processes we have developed matches or exceeds the normal process of studying protected flows using incremental methods. I feel very comfortable with the results we have got so far so until the third-party review comes up, which will be the arbiter of whether this has completely missed the boat or done a decent job of within the variability of fisheries and incremental studies and statistics, this is what I think we should go with.
James McCartney – Carl, I think we want a motion. We can continue discussion after a motion is on the table.

- **Carl Paulsen motioned to move to the public hearing process in January. Brian Gallagher seconded the motion, a vote was taken and the majority was in favor with one no vote (Vern Lang). The motion carried.**

Carl Paulsen - I share some of your concerns even though I am not comfortable with the fisheries biology part of it, not having training in that aspect of things, but this is the pilot and we need to see how it works. The intent is that after it is in place for a year,

there is a pubic hearing and review process and a window in which the legislature also would take a look at it and review what happened in the trial period and the public hearing following it. They do their own review and decide if they will allow it to continue on into the rest of the rivers in the program or try something else. This isn't the last crack at the problem so that is why I feel we need to move, even though I don't feel comfortable with everything**.**

Dave Cedarholm – I agree with Vern but my opinion doesn't necessarily weigh in with the Committee. If there is not a third party review the chances that the water users in my area believing this are tough. This whole thing can fall flat on its face. Even though we have the opportunity to provide public comment after a year of this being in place, if we don't see low flows or flows that challenge those PISFs then there will never be another opportunity.

Al Larson – Then we will know there was a problem but I understand.

Robert Flynn - Was there third-party review on the Souhegan?

Wayne Ives – No, because of the comments that came up regarding the Souhegan, we are looking at the Souhegan and Lamprey as Vern suggested. The questions that came up were statistical and fisheries-based and whether the incremental model was appropriate for generating the protected flows for fish. A third party review came out of that to get some experts in here who didn't have an interest in NH or what the protected flows are because of a use or recreational issues and have no interest other than in promoting the science and ask them what they think of what we generated, the process, methods and results, and anything that is missing. I am looking for people with fisheries and statistical backgrounds with fisheries data to support or deny this process, statistical analysis to make sure the number crunching was done right and the incremental flow methods because there are three hundred protected flow assessment methods in the world and some of them work better than others. They all generate some form of protected flows, but this method provides us with a method that looks at this from the perspective of not just a single minimum flow, it gives us the [flexibility of the] natural flow paradigm that we would like, because there is no way to generate single minimum flow values without violating them at some time without putting in the durations, frequencies and timing issues into the process. This process answers that question and starts from the perspective of the representative reach and expands and extrapolates that from the reach level to the river level so it is not a gigantic extrapolation that is--going from a reasonable size to the next higher size up.

Robert Flynn – In general people accepted the results for the Souhegan? I know that there are pros and cons to MesoHABSIM but those results were acceptable?

Wayne – We sent it to the public hearing and I know the public aren't the experts on this and I am sure they didn't dissect the model or fish data but the Souhegan Public Hearing was a non-event and didn't have high attendance. The Water Management Plan is where the rubber hits the road. The process needs to be combined more with the science. We need to put all the science together and say here is what we describe as the protected flow and the Water Management Plan that goes with it and then present it as one thing so that people know the science we did and the result of it together. Right now we only have the science and we are trying to divorce that from the decision and the policy directions of the Water Management Plan but a lot of people are more interested with what the result is than they are with how we get there.

Robert Flynn – Is the same mechanism is in place for a review after one year with a third party review in the Souhegan Project?
Wayne Ives – The third party review covers both of them with the Souhegan and the Lamprey. It is a process that is intended to show how we got the riparian, vegetation, wildlife, MesoHABSIM, recreation and hydropower numbers and if they are appropriate. Was the data collected correctly, and are they reproducible by another party and would they generate the same numbers? That is largely theoretical because any time that you go out and measure a fish population you are going to find variations.
Carl Paulsen – I wonder if this moves forward if the Committee would issue a statement on the issues that have been raised that haven't been resolved to our comfort level, such as Dave's issue of uncertainty and sensitivity analysis.
Wayne Ives – We have already done that with the response to comments.
Carl Paulsen – The issues are that we as a Committee agree that all the issues have not been fully fleshed-out or resolved and if it would give anyone a comfort level moving forward that we have raised these issues and are aware of them but are letting the process go forward.
John Magee – I would support. I think there is a lot of utility in having a third party review for legislation in the future for a public hearing. I think it is a good way to communicate but I also advocate for making it short and concise, not a six page letter.
Carl Paulsen – I would be willing to participate in drafting of something if the Committee would like.
Al Larson – That would be more of a statement for the record as opposed to a document that we need to respond to.
James McCartney – It would be more of a collective comment on behalf of the Committee as opposed to individual comments.
Steve Couture – Would the TRC approach it as individuals submitting comments that we have to respond to or as a group do we have respond to that as well?
James McCartney – It is not so much a comment as a statement on behalf of the TRC.
Carl Paulsen – I'm suggesting specifically that it not be a record that needs a response.
Jim McCartney – For the next step, do you want to leave it to DES for the date in the month of January and location for public hearing?
Wayne Ives – We will do that and notify everyone. The suggestion so far has been Fish and Game and UNH for the Durham Locations. It has to be held in Lee or Durham. Do you have any ideas for locations or is there a preference for either of those two?
Dave Cedarholm – I would recommend Oyster River High School. It is a neutral location and has good parking.
Brian Gallagher – The Mast Way School on Route 155 may be a possibility. It is in downtown Lee and has ample parking and it is where the town holds its town meeting.
Wayne – I will identify a time and place. Is a Monday ok for the TRC? Ideally Thursdays seems to be when you guys are available. Al, when is the night you can't.
Al Larson – It is Monday or Tuesday.
Lisa Fortier – You will have to get someone else to record on a Thursday night because I have a class.
Brian Gallagher - Wayne you can probably get Dawn Gaines can probably set that up if you want to go with the school in Lee. She lives in Lee.

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Wayne Ives – Evening is what I am looking at, probably starting at 6:30 or 7:00 and probably go until 9:00 or shoot for the 7th or 8th for a date, depending on availability.
Jim McCartney – Is there anybody that would like to help Carl draft some kind of statement on behalf of the Committee.
John Magee – I can help.
Jim McCartney – Pull something together and we can circulate that to the Committee and basically it would be a statement on behalf of the Committee and if there were any Committee members that had a problem with language, let us know via e-mail. Is that acceptable to folks? There has to be a high degree of consensus on the particular issues that we are talking about including in there. With respect to final comments on the reports, you will entertain them how much longer?
Wayne Ives – Comments are open until the end of comment period. I will get the file naming procedure out to the Committee.
Al Larson – Ideally it would be readily accessible and be revised online so that other parties can look at it.
Jim McCartney – If you have any last minute comments they must be submitted with any undue haste or forever lose your chance to do so.
Carl Paulsen – I am eager to get thoughts about comments for the statements as well even though John is the only one to formally offer to help me out.

12:25 **Adjourn meeting**

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