APPENDIX B

August 28, 2018, Public Hearing

- B-1 August 16, 2018, Notice of Public Hearing and Designation of Hearing Officer
- B-2 August 16, 2018, Public Hearing Transcription
- B-3 August 16, 2018, Public Hearing – NHDES Presentation
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The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

DESIGNATION OF PRESIDING HEARING OFFICER

INVESTIGATION OF LEVELS OF INLAND WATERS

NEWFOUND LAKE – AUGUST 28, 2018

I, Robert R. Scott, Commissioner of the Department of Environmental Services, hereby designate Kent R. Finemore, Assistant Chief Engineer of the Dam Bureau, as presiding officer on my behalf for a public hearing on the investigation of levels of inland waters at Newfound Lake, to be held on Tuesday, August 28, 2018 at the Bridgewater Town Hall in Bridgewater, NH.

Robert R. Scott
Commissioner

24 August 2018
Date

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29 Hazen Drive • PO Box 95 • Concord, NH 03302-0095
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The State of New Hampshire
Department of Environmental Services
Robert R. Scott, Commissioner

STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
DAM BUREAU - WATER DIVISION
CONCORD, NH
NOTICE OF PUBLIC HEARING

In accordance with RSA 482:79, notice is hereby given that the New Hampshire Department of Environmental Services, Water Division, will hold a public hearing related to an investigation of levels of inland waters at Newfound Lake in towns of Bristol, Alexandria, Bridgewater, and Hebron, NH at 6:00 PM on August 28**,** 2018. The hearing will be held at the Bridgewater Town Hall at 237 Mayhew Turnpike (Route 3A) in Bridgewater, NH.

Beginning at 6:00 PM August 28, 2018, the Department will receive testimony from the public concerning a request for a Lake Level Investigation focused on managing lake levels to control erosion along the shores of Newfound Lake.

Testimony may be presented orally and/or in writing at the public hearing. The Department also will receive written comments on the investigation of levels of inland waters at Newfound Lake until 4:00 PM on Friday, September 28, 2018. Please submit written comments to:

Kent R. Finemore, P.E., Assistant Chief Engineer, Dam Bureau
NH Department of Environmental Services
P.O. Box 95 – 29 Hazen Drive
Concord, NH 03302-0095

or e-mail to Kent.Finemore@des.nh.gov

Questions regarding the investigation of levels of inland waters at Newfound Lake should be directed to Kent R. Finemore, P.E. at (603) 271-0566.

Robert R. Scott
Commissioner
NH Department of Environmental Services

Dated: August 17, 2018

08/28/2018 Newfound Lake Meeting Transcript

NOTE: This transcription of the recording of this meeting is a best effort attempt to capture the discussion at the meeting.

Kent – Ok. Thank you. Sorry for the brief delay, but we have, obviously a full house. So it's good to get everybody checked in. Just a reminder that if you were intending to speak - you don't have to fill out a card - but we are going to take those who did fill out a card, in the order they filled them out in first. So it might be a few minutes before you get the opportunity to speak if you don't fill out a card. We are recording. I have a small digital recorder I had put it up there near the speakers, are there. We've got sound here. I'm using this microphone. We'd like to welcome anybody that's going to speak, if they could use the microphone, please, so that we could try to get a recording as best we can. These microphones, they get away from me, you have to be close to it. You've got to be right in front of it. You can't be to the side. You've got to be right in front of the microphone to hear the signal. Right. Welcome everyone. For the record it is a little after six on Tuesday, August 28, 2018. We're at the Bridgewater Town hall in Bridgewater NH for a public hearing relative to a lake level investigation for Newfound Lake. My name is Kent Finemore. I'm the Assistant Chief Engineer at the Dam Bureau at the Department of the Environmental Services, which I'll be referring to as DES from here on out. I've been designated by the commissioner of DES, Robert Scott, to serve as presiding officer for this hearing. With me today are the Chief Engineer for the Dam Bureau at DES, Jim Gallagher, and Dan Mattaini is the Administrator of the Operations and Maintenance section. Helping check people in is Jake Ruiter from also from Dan's section. Also in attendance in the back to is Peter Ames. He's our operator at Newfound Lake Dam. Key person, the operator of the dam and more importantly, what happens at the waterbody. I'd like to take this opportunity to thank Selectman Terry Murphy from Bridgewater, for helping to provide the venue.

Terry Murphy – the air conditioned venue I might add (audience laughing)

Kent – DES received a request under the NH revised statues annotated 482:79, to conduct an investigation of conditions affecting the use and enjoyment of the NH waterbody. I'm sorry NH public water, Newfound Lake. We are conducting this hearing to receive testimony. It is part of the process of conducting an investigation. The rules for such hearings, for notices on hearings, are set forth in part Env C 205.04 c of the NH code of administrative rules, and they direct DES to notice by such means as the commissioner determines will notify those persons are most likely to be interested, in the most cost effective manner. This hearing was noticed on August 20th, 2018 in the following ways; We requested to post at the town halls of Alexandria, Bristol and Bridgewater and Hebron. Notice was also posted on the DES web site. We did request to have the notice published in the Newfound Landing publication of the Salmon Press. I was not able to confirm that. We did make a request. The purpose of this hearing is to except testimony from interested parties, relative to an investigation on conditions

affecting the use and enjoyment of Newfound Lake with a focus on managing levels to control erosion along the shores of Newfound Lake. The agenda for today's hearing includes a brief presentation from Jim Gallagher about Newfound Lake, the Newfound Lake dam and its operations. I will then open the public hearing and comment period to receive testimony from interested parties. We will hear from those, as I said, that have requested to speak and fill out a card first. Then the public hearing is still open, we can hear from anybody that would like to speak at that time. I will close the public hearing at that, after everybody's had the opportunity to speak. Remind everybody that the comment period closes at 4 pm on September 28, 2018. Before we return the hearing. Those cards, I'm intending to call folks in the order that I received the cards. It's not a problem if you have an eight hour card it might take a few minutes to get to you, the speaker. It is our intent to hear from those who haven't spoken yet, before we hear those, from those again, who have already spoken. We'll try to give everybody an opportunity, as best we can, to speak. The New Hampshire Code of administrative rules part Env C 205.07 requires that any individual wishing to testify at a oral public hearing shall submit his or her name and address, that's why we're doing the cards. The presiding officer shall call each individual up present their testimony and also encourage you to submit written testimony if you so desire. Submit that to the presiding officer on the public hearing notice you can see my name, address and also email to send it to. We're using the sound system today. Hopefully everybody can hear. When anybody speaks, again as sort of a reminder, we're using these microphones. You have to be real close to them, you get a signal. Lastly DES is here to conduct a public hearing and accept testimony relative to a lake level investigation on Newfound Lake. With such a hearing we're here to collect testimony for the purpose of compiling a decision ultimately. We're not obligated to respond to questions. We may try to answer some, four or five, questions, but in order to maintain the integrity of the public process and ultimately compile a decision coming out of the investigation, that includes thoughtful and accurate and responsive questions we may not be able to answer. Specific questions here at the hearing. But we will accept everything as testimony. Right, any questions about process before we proceed? Right, I'd like to invite Jim Gallagher to provide a brief presentation to start.

Jim Gallagher – Thank you, thank you Kent. This on? Can you hear? My name is Jim Gallagher I'm the chief engineer for the Department of Environment Services Dam Bureau. We have three sections and we're responsible for the safety of twenty six hundred dams in the state. Whether they're State owned, publicly owned, privately owned. We are also responsible for the engineering and construction sites, and we're responsible for all the repairs and construction needed on the 278 state owned dams. In our operations section, operates this dam and over 200 others on a daily basis. Peter Ames, as we said is the operator for the lakes region. Peter lives in Lakeport, operates some of the big lakes; Squam, Winnipesaukee, the dam on Winnisquam and a lot of smaller dams in the lakes region. So it's a big operations burden, and this is one of our more important ones. I have a presentation on the history of the dam, a little history of the dam. How we currently manage it, how that management plan has developed over the years, and then also some of the resources that we use now to improve our operations. So it could be a little technical, you may have some questions on what gets presented

and I'd be happy to answer them. Perhaps right after my presentation if you have questions on my presentation or we start hearing the testimony on concerns that you may have on the current operations and perhaps what we really hope to get out of, out of these hearings is preferences. From the folks and the stake holders around the lake regarding the operation and maintenance of the dam. I know most of you probably already know this, the lake, I think it's the fifth largest lake in the state, 42 hundred acres. The drainage area though is far larger than we have, the drainage area that drains into that lake is nearly a hundred square miles. So when you drop the water, that falls in that watershed, it runs off the surface of the ground, ends up in Newfound Lake. And because of the large size of the drainage basin, 1 inch of runoff from that drainage basin can raise that lake 14 inches without any releases from the dam. Also because the steepest, the average slope of this drainage area is about 16 percent, which is very steep. So when this rain starts falling, and we start getting that runoff, it gets down to the lake in a hurry, not a lot of time to react. Some history on the dam, there's actually this picture I think is from 1934. The dam was originally built in 1848, constructed by the Bristol Water Company. In 1934 it was owned by Newfound Power Company and then in 38, or by 38, somewhere in between that time, Public Service of New Hampshire took it over. In 1973 Public Service of New Hampshire owned a lot of these dams. They did own the dam on Winnipesaukee, they did own the dam on Winnisquam. A lot of them. A lot of recreation lakes - they had owned. They either bought it from the mills and built these dams that were no longer in business. They provided water storage for their hydro power projects downstream but in the 70's they began to realize that they weren't worth keeping to a new hampstead power, so they'd all become important recreational resources. Certainly Newfound Lake, Winnipesaukee, in that case, Squam, so the state took them over. We got the, the Public Service of New Hampshire was generous enough to sell them to us for a dollar, provided us another $50,000 dollars, because there was repairs that needed to be done at that time. So with that acquisition of the dams, we also acquired all the land and water rights that the previous owners had before. So the actual mean high water level of the lake is at gage reading of 2.24 on the gage. So before the dam was built that was the natural, that was the natural level of the lake, and then the previous owners acquired, fee ownership, particularly at the end of the lake down by the dam, fee ownership of land up to 7.24 on the gage and we had also flowage rights on other parts of the lake up to 7.24 where we don't have the ownership. Here's just some pictures of 1934, the timber dam. Looks similar to the current configuration. It was all timber crib and stone. Here's again the timber crib spillway. When we got the dam in 1976 we did this, again this was funded by the $50,000 from the Public Service of New Hampshire which went a lot further then, than it goes now. But we ripped out the side of the dam, the timber side of the dam on the left side, looking downstream and rebuilt the gate house and made concrete stoplog bays. And then, I think it was yeah, this says 76, we also did work on the right side. Replaced timber on the right side of the, with now concrete. So this is the current condition of the dam. Got the gate house, that was built in like 2008. We got on the left side there's a section opening called stop logs. These are just wooden boards that fit into those metal beams you can see, that have to get pulled out during the flood. Manually pulled out. A worker has to

get up on that cat walk and that worker is Peter and any other help we can provide him. Hook on those stoplogs with a metal hook, got eye bolts on either end, then yank them up. It's hard work in that condition and it's really hard work when you've got water flowing over those stoplogs. So water management history. In 1971 we didn't own the dam then, Public Service of New Hampshire had the dam. We received a petition from stake holders around the lake asking us to review PSNH's water management practices because they operated like the mill owners before them, to provide water during low flow periods to the generating facilities downstream. So you can see a six foot drop in the lake level in some years in the summer time. I know before Public Service New Hampshire had it, the mills had it, that drawdown in the summertime could be as much as 9 feet. So the petition, just like the petition we received here to start this lake level investigation, came to the state and we conducted a lake level hearing. You could see the petition came in 1971. The question I've been asked is how long do these procedures take. These lake level investigations take. The economic complexity, they can take even a couple years, while we work out the differences of viewpoints from all the stake holders. This particular one took three years. The fishermen were looking for higher lake levels in the 70's, early 70's. So we came up and I hope you can see this, is it's a little washed out, this was the operating, the agreed on operating rule curve, what we call, after that 1974 lake level hearing. So the idea was that June 1st we fill it up at 7.24, that's full flowage rights. Get it up on Memorial Day. Labor Day drop over the course of the summer. Usually due to evaporation and releases made for downstream hydro power operations. Drop it down to elevation 5 on Labor Day and draw it down to elevation 2.5 by Columbus Day. Columbus Day traditionally is the time of our drawdowns. Of the 200 dams that we operate on a daily basis, about 50 of them we drawdown in the fall to protect the shoreline.

Man in audience – Can we ask questions?

Jim Gallagher – Absolutely, yeah

Man in audience – so how does that, what does that equate to the 588 number that we have today?

Dan Mattaini – 6.0

Jim Gallagher – 6.0 is 588, so it's equivalent to 2.5

Man in audience – so it's way down

Jim Gallagher – it's way down, yeah, yes it is. So to operate it under that scheme for about three years. Then we got this request from the Newfound Lake Region Association and the Newfound Region Chamber of Commerce asking us to reexamine that. There was concerns about the drawdown scheme, too low and the full summer lake level being too high. Again we were operating right up to our flowage rights, so if we had a rain storm on top of that, which you can get a high inflow event in June, we'd have flooding of property we didn't even know, or have rights to flow. So out of that came

this point. This 1977 curve which lowered the full lake level, the normal summer level down to 6, still had the lake level drop to 5, 5 on Labor Day, and at Columbus Day we had 3 and half and we stayed at 3 and a half till spring refill. Also again though through the spring refill, our target was 6.0 on Memorial Day. We do have high inflows in the spring time because of the runoff gage. It's not because we have more rainfall in March and April. In New Hampshire we get about the same rainfall every single month. It varies between 3 and a half and 4 inches on average. But the runoff from that same amount of rainfall in March and April before the trees bud out, before the vegetation comes out, while there could be still snow on the ground. The runoff we get in those months is far higher than the runoff, in the same rainfall we would get in August and July and September. So because of that, typically we'd be, we'd see some spikes up above the 6.0, but the goal was, of this management plan, to keep the below 7.2 if at all possible. And operating under that plan for another five years. Then another petition, of property owners around the lake take a look at things, and they're, and what ended up happening there was, this was the plan that was developed at the last lake level hearing investigation, after thousands of different stake holder interests we essentially shifted the target full date from July 1st to Memorial Day. And the lake gradually dropped to Columbus Day to an elevation of 4.5 on Columbus Day. And then, as needed, over the course of the winter, drop it down to the maximum, 3.5. To see what we do in January and March, we see how much snow pack we have, whether we need to do that drawdown at all to accommodate the snowpack and runoff we're expecting to get in March. So these are just the three plans that are superimposed. You can see the what we ended up doing really was narrowing the operating range, for the lake largely, and then the one that we're currently right now is, our plan since 1982, shifts the high full date to Memorial Day and has a shallower drawdown March, certainly back in the 70's. and that is, that's the plan that we try to operate to today. It's not though, it's not a bathtub. We have no control over inflow. We have a control of outflow, but even that is limited. So it's certainly a challenge for us to keep on that but that is our target. I'll talk a little bit about how we're doing, over the last year, in a moment.

Man in audience- Why do you do the drawdowns?

Jim Gallagher – We do the drawdowns largely to protect the shoreline structures and provide storage for the high runoff we're going to get, we know we're going to get in the springtime. Ice gets on these structures, or even ice sheets that are still on the lake, can really do a lot of damage to shoreline structures. So that's one of the, one of the reasons and the other is providing the storage. That has to be the Mother's Day flood and you know we had then we are starting to fill it up, I can't remember where we were at Newfound but we are in the process of starting to fill that lake up, but obviously there was still some storage left, to provide some mitigation of downstream flooding. We operated it and tried to minimize, we try to reduce in lake flooding, as well as try to control flooding downstream. There's property that gets damaged downstream on the Newfound River, from the flows on the Newfound river. About a thousand to a few feet per second. So what we try to do is limit our releases from Newfound to about 700 cubic feet per second so that when those releases are combined with

flow that's coming in downstream of our dam, to these damage areas they aren't flooded. We reduce the frequency of flooding. But our primary goal here, in operating all the lakes is that we have including the commerce is recreationists, enjoyment of the lake, the property owners around the lake, and people who come up here to recreate at that lake, and that and our goal every year is to get all these lakes actually up by Memorial Day. But we have other objectives as well. The loons, loons are a threatened species, and we are, to the extent that we can, operate and protect loons and the challenge they show up at ice out , typically when the lake is full at ice out, but we have to control the rate of rise, so we don't inundate the loons' nest, really very closely to the water. We also have to take into account the needs of downstream hydro power users. There is a downstream hydro power on the Newfound River. They actually pay us for what we call a water user fee. That funds the operation. It funds Peter's position, it funds the operation of our costs to operate Newfound Dam. We, in our operations we're storing water during high flow times, during the, during the spring runoff days we're flowing really high and they couldn't use it and then we deliver it to them at other times when the flows a little bit lower, and that will keep them operating. So they have a minimum flow requirement of about 60 cubic feet per second. They have an optimum flow of somewhere between a hundred and eighty, 220 cubic feet per second and a maximum flow up to 280 cubic feet per second, anything beyond that they're spilling water and they're wasting. To the extent that we can we take that into account as well. When we're doing our drawdowns we don't give them the water if we can help it to more than what they can use and in the summer times we're making releases. We try to provide minimum flow when we can, when we can, but not at the expense of the recreation. In, this is downstream pictures taken before we put the gate house on, so it predates 2008, but in that 1982 plan, Fish and Game weighed pretty heavily on our operations there. They insisted on us providing minimum flows during the summer time to support the downstream fishery. That ratchets down over the course of the summer. Starts at 80 cubic feet per second. In July it's 60 cubic feet per second, in August it's 40 cubic feet per second, and to the extent that we can, we make those releases, but during drought times we've been having in the summertime, we curtail those releases and still and when we get down to it there's, still a minimum of 15, between 15 and 12, at least provide some instream flow needs. You know the timing of the drawdown is an issue. We do it on Columbus Day to allow, it's still warm, fairly warm, typically on or around Columbus Day, it allows the amphibians too get to where they're going to go, and hibernate before we draw the lake down. And a big issue here at Newfound Lake is, also some of the other big lakes we operate is, fisheries. The lake trout, big fishery here that's important to the state. The problem with the lake trout, they spawn on Halloween, typically, right on Halloween and so the concern is if they spawn in the shallows of the lake and then we draw it down below what it was on Halloween, then say there's a couple of people that look around on Halloween, then those lakes they would be stranded and a unique fish to Newfound Lake is brown white fish. And you don't see many people catching them because their mouths are so small to get on a hook, but they are actually a threatened species. They are in Newfound Lake and they also spawn in November and December. And they spawn on the shallow, the shallow sand beds and so again, just like with the lake

trout, we started drawing that lake down much lower, than the elevation it was when they started spawning then we could be affecting them. So we've had requests, some of you may be answering for them today we've had requests from folks who had property, or their families had property in the past, property that they owned, that was built many years ago. They have retaining walls on their property and the retaining walls were built 60, 70, 80 years ago when the mills owned the dam and used to draw it down pretty empty in the summertime. And they would like to be able to get in there to that level again to repair those walls. When we've run that idea by Fish and Game Department, again they were really concerned about the impact it would have on the fisheries so this is, they prefer that we don't even draw it down as far as we do now, but keep that drawdown limited to 4.4 to 4.0 on the gage. And so as part of this process we are going to have to have them weigh in on our operations and again balance that with some of the other needs for water in the lake downstream. It's a little washed out so, this is our year to date operations. Up in that top line, I'll be providing this presentation to the Newfound Lake Association to Boyd there, so you'll be able to see a little bit clearer, but the red line is the actual lake level on the top. The blue line is the average over the period we've been operating under this management plan, from 1982 to the present. That shaded blue is what we call standard deviation of water level that day. You can't see, in the plot, you'll see a maximum and minimum of all these days but we got that spike in January, that lake level did come up, we pulled it right down the middle of, that middle graph is the bottom, the inflow into the lake and the discharge. And you can see whenever we get a large inflow we're increasing the releases accordingly. And then over the course of the summer we've really been running very minimum release, till we had a rain event, these rains we get in August bumped up the lake and then we increase releases we get that lake back down to that green line, some green dots, just in this case, just below the blue line, the average lake flow for that period of record. So I just want to get into here now, talk about the history. How we operate, some of the things we try to do over the past couple of years to improve our ability to operate this dam. These, what we've done is on the gates we have eleven stoplog bays and have those stoplogs that Peter has to pull to increase discharge, but we also have three gates in the gate house, three 6 by 6 foot gates and those can be operated automatically. They can be operated from a computer, my computer here, computers in Concord. Jake can be in his pajamas at his house and operate those gates. So it does give us more put a response time, if we see something hots happening. If we can't get Peter out here. Usually Peter goes out, even in these rain events and operates these gates, but there is still a danger somebody might be downstream and we don't want It's a fishermans popular fishing area, people kayak down there. When Peter does do his operations, he makes sure there's nobody there downstream. We have a camera on the dam so that if there's a real emergency and we can operate remotely. We can at least look in the rearview to see if anyone's down there, then operate those gates. And even think still I think Peter can, it's still a lot easier operating those hand crank gates we had, that we had in 2008 and that's when we rebuilt the gate house on top of it. Again so these are the stoplogs. We've got eleven of these bays. To increase the discharge beyond those gates, somebody has to get out here and hook on an eyebolt, you can hardly make them out , those

eyebolts on either end of those things. Put the hook, the hook in there, you know that's tricky work, it's tricky work in that condition, when the waters flowing over it you can't even see where those eyebolts are. But we are, that's the only way we can operate, increase the discharge beyond the gates right now. So what we're looking at doing, in the future though, is try to put some spillway gates in place of these stoplogs to give us, again, a way to operate these things during a flood event. The only way we can operate these things is in advance of a flood event. And again this is a picture of that flood event and you can see what had been taken we had to get out on that catwalk with all that water coming through and trying to hook on, hook on a stoplog. But again you have to keep in mind that when we do these sort of operations we've got flooding concerns downstream so we don't want to be causing significant property damage downstream too. And lastly, I just want to speak about our modeling system. We've developed computer models in all our drainage areas including Newfound drainage area where we have a large amount of dams, very important dams and the, get to the output of these, well we get to the data that we use in making our operational decisions on real time data on DES's web page here. This address www.des.nh.gov and the quick links on the right has a lake level link, you click on that again these are the drainage areas where we have, where we have computer models and there's a, what a dozen now Dan?

Dam Mattaini – about that

Jim Gallagher – yeah, all and these are where, that's where environmental services has them anyway, that has all their dams and again this is a little washed out but we've got stream gages, lake level gages in the basins, and that data comes out on a real time basis, goes up to the GOES satellite. We get that hourly, hourly move and interrogate them more frequently than hourly if we need to. We get the data down in our receiving station and it automatically goes into our database, into our modeling software. And this model, a computer model, has the drainage area, it has the soil types and the runoff characteristics and it keeps track of the runoff characteristics if they change. After we get a lot of rain we get more runoff from it because the ground is saturated. These computer models track that. These computer models track the amount of moisture, the water content in the snow cover when the snow covers there. And have teams in the computer programs that will take, compute how much melt we're going to get based on the forecast and temperature. We get 48 hours to 78, 72 hour quantitative forecast from the weather service. That gets input into our models and over here on the bottom left, you can't really see it, but it's a projection of the flooding we're going to get in the next few days. So this is our network, over on the right here's our network of stream gages. This is one of these gage boxes look like. You've probably seen one on the dam that measures the lake level and releases. We have our own ground to seed station now. This is another improvement to used to. We started this. We used to have to rely on those, around the seed station on Wallace island Virginia and it never failed during a large event, you know we would have communications breakdown. We would only be able to interrogate that data from a, using telephones. So know we have our own collection of dish and that data goes right there at DES, DES's office in Concord. Again going back now to the web page, you click

on that link, that quick link on the lake level data, you get this page, and you can click on the Newfound Basin, you have and that page has both the Ossipee and the Pemigewasset Basin, with Newfound Lake and Squam Lake. There's an icon on Newfound Lake. There's an icon at the Cockermouth River where we get inflow. So we click on the, click on the Newfound Lake, you can get precipitation for the past two weeks right?

Dan Mattaini – yes

Jim Gallagher – yes two weeks. This is actually this afternoons and you see we've had a couple rain events. Going back to it you want to see how much inflows coming into the lake. Here's how the Cockermouth River behaved in response to that rainfall we got. Going back to Newfound lake again, the daily precipitation at the dam, the lake elevation you got a that's a, that is a Jake can talk about that better, that was a spike, that was just an instrument spike

Jake Ruiter- inaudible

Jim Gallagher – yeah, on that, on that day, yeah that's how the lake level can operate. You see the June 1st target levels in light blue on top, the Columbus Day is down at the bottom. The releases you can get in real time, the official releases, so you can do Monday morning quarterback. You can take a look at this see how good a decision we're making and say well is that a good decision? We do get those calls, not from you folks. In that page, this is washed out too, like I said and that's getting take a look at the presentation when it gets on the Boyd's webpage, but this is, this is essentially summary of our operations, plan and what you also get is what we're going to do. In the case right now, you know Newfound Lake, we're not anticipating any inflow over the next few days, so you know so it just says what the lake level is and what the releases are. But if we're going to make a change, tomorrow or the next day, anticipating that, that information will be on there, so if you can have that interest, you can get that real time information. So that's all I had, for my presentation. Again I open it up to questions that if something wasn't clear in my presentation. If you want it clarified and if not if you have any questions then we'll just go right into the testimony. Yes sir

Man in audience – Jim just one question. Do you see rain coming like this, like two, three inches, do they proactively start increasing the flow or do you wait till it's finished?

Jim Gallagher – The question was if we see something coming, three inches of rain do we proactively make an operation. In this case, in the Newfound we do, to a degree. Because of the, it depends on where we are with the lake honestly. If the lake is low and we have the storage we wouldn't do it. If the lake was higher we would do it. We don't want to be adding that increased discharge at the peak of the storm because of the folks downstream. And at Newfound Lake we can get that refilled a little bit easier than we can other lakes. We don't do it at Winnipesaukee. At Winnipesaukee that lake is so big, relative to the size of the drainage basin, as big as it is, if we released water out of Winnipesaukee

ahead of it and we don't get that event it would never refill. Newfound we can do that. We've done it at Squam. I think it was Irene, tropical storm Irene we did full. Yes sir

Man in audience – at 2.4, that would be the mean natural water height

Jim Gallagher – yes

Man in audience – the natural water height. How did they get that in 1848 when there was already a dam there?

Jim Gallagher – in 1840 1848

Man in audience – you said that that height was on the dam

Jim Gallagher – oh no, no no. It's on our gage

Man in audience – it's on your dam gage, where is the actual mean high water mark, 50,000 years ago

Jim Gallagher – yeah it would be at that elevation, that elevation that corresponds to 2.4. You say Jake what

Jake Ruiter – 5.88

Jim Gallagher- It's 6.0 right

Jake Ruiter – it's zero

Jim Gallagher – ok, it's zero ok

Man in audience – where is that, when was that, and where was that taken

Jim Gallagher – it's, it is historic we got a lot of historic information on this dam, but it was a determination made many years ago. We have some information if you're interested in it. Yeah Boyd

Man in audience – how fast will the water get out through the dam in starting to tear at least when you're flooding people downstream. How much can you lower the lake in say 24 hours full throttle

Jim Gallagher- Good question. So we try to keep the maximum releases at 750. We've released from the dam about 2,000

Dan Mattaini – yeah about 12 hundred is the maximum

Jim Gallagher – In the mothers day storm

Man in audience – so lets say it was 4,000

Jim Gallagher – 4,000 on mothers day and so Dan you know that, so lets assume it's 1,000 cfs we're releasing. How much, without any inflow, how much is that

Dan Mattaini – the lake level a foot and a half

Jim Gallagher – A foot and a half a day

Dan Mattaini – I'd have to check that though

Jim Gallagher- Yeah I mean I know that number at Winnipesaukee, but I don't know it here, but I can get it for you Boyd. So if that's if for the questions I'll just open it up to hear from you folks

Man- I have one. Do you ever publish this information to the legislature or any part of the public?

Jim Gallagher – Public, well this information on our website is available to the public. Yeah in real time I mean if you go home and you're on our web page you can see all this information on the data we have and what our goals are in the management above the lake. This presentation is going to be prepay the bill. Yeah we do report to the legislature. Up until about five years ago there was actually a legislative dam management review committee that I reported to every year. That committee is no longer in business but there are opportunities for us to work with others

Man – Well it would seem to me it might be wise to distribute some of this information to all these people who are property owners on the lake and very interested in what you're doing with the water levels

Jim Gallagher – Yeah and that's why I appreciate to have this opportunity to come here and explain that all to you. I know last time we had a presentation like this up in this area was probably about eight years ago now and so that's overdue. You know any time we have an invitation, this is a formal hearing that we, that we're conducting now and we set up but I often speak to lake associations in the summer time at their annual meeting and I'd be glad to do that if you folks were interested in that.

Man- I think you touched briefly on the funding of the Dam Bureau. Could you mention that, explain that a little? Is it kind of a general fund with the state of New Hampshire or is it specifically, did you say from hydro or

Jim Gallagher – both, ok it's a mix. It's a mix. Peter's position is funded by downstream hydro power operators at Newfound, upstream of Squam, downstream of Lake Winnipesaukee and the required about hydro power operators down the Merrimack there's another source at the facility because they pay us what to for the storage of this water mostly, downstream projects and that funds, not just Peters position but all the costs associated with operating these dams. I'd say we got 200 dams that we operate on a daily basis and some of these here in the Lakes Region and the dam that we own, Murphy dam on the head waters of the Connecticut River that's also one that we have a outside of

here yeah hydro power operators downstream. But the rest of the operators, all of the, which there are probably another maybe 175 dams, that operation is funded by the general funds and that was a legislative action taken, because up until then our funding source was leases. We leased out 11 state owned dams for hydro power operation and the thing of the water user fees. They're generating power at our dams, we get a percentage of it, revenue that they make, that they got from the generation of hydro power and that's funded, the operation of all these state owned dams, because of the, they had way above market prices, they had power purchase agreements that paid them far above market price. Those power purchase agreements are gone now. The revenue they get from the generation of power is very, very low and it's not enough to sustain the cost of operation for all these dams. So the legislature looked at alternatives and determined that because of the importance of these lakes, public safety, the difficulty with maintaining these dams in a safe condition, that was an appropriate general funds to spend.

Man – so that's how that gets funded

Jim Gallagher – Major repairs get funded with capital appropriations from the legislature. And so, to get the equipment, so every, every biennium I'm in front of the legislature talking to them about needed repairs on the inventory of dams, 276 dams, yes sir

Man – one last question, Are there some lakes that you simply lower the level to allow repairs? Some contractors have mentioned that to me. Some of the lakes like every 2nd year or 3rd year are lowered to a level that allows repairs.

Jim Gallagher – We, there are some, some lakes are. Winnisquam is one that we normally do a one foot drawdown, but every other year we do a 2 foot drawdown to allow lake shore owners to schedule repairs to their property. Yup, yeah and so all the drawdowns that we do on these other 50 lakes, do provide that same opportunity to do repairs on the lakes. And we try to work with contractors to schedule that work. DOT is famous with u, you know they go to do some bridge work and they like the lake lowered and so we try to work with them on scheduling that drawdown . yes sir

Man – Can I ask you that the people that are asking the questions out loud. I understand the questions can't hear

Jim Gallagher – yeah

Man – could you repeat it so

Jim Gallagher – yes sir I can, so that questions was do we do drawdowns to allow contractors to do work. Certainly on a lot of the state owned dams we have to draw them down to do repairs and like what we just did with Mendums. That lake was drained for a whole year and the question was do we do drawdowns for contractors or we try to coordinate with to work with our drawdowns . ok so yes sir

Man – I have a question. I want to know if the Dam Bureau acknowledges that their management of the water level over the last 25 years or so, up until now, has resulted in the loss of beach width all around. A lot of people here are concerned with that

Jim Gallagher – yeah

Man – but you never mentioned anything about beaches in your talk about there's big concerns

Jim Gallagher – oh yeah I hear you. That is the basis of the petition to us. So we want to hear about that. But this again is a practice that has been going on for a long time. The fluctuations were far worse before the state took over the operation of this dam. Now we operate it within a relatively narrow, certainly a narrower band, but the effect of it we see this a lot, a lot of other lakes you know, but I'm not sure what it is. I don't know if it is dam operations or is it the size of boats that we have now or is it wakeboarding boats. And I'm not denying a role and that's what we trying to get at here is. Is there a different way of operating the thing that addresses erosion as well as satisfies all these other constraints that we have to come up with in operating the dam

Man - I have a series of about twenty pictures or so

Jim Gallagher – oh yeah

Man – photographs of Waldron beach in particular. It used to be a big wide beach years ago. It was actually a lot wider

Womans voice – about three feet

Man- about I don't know, but it's not what it was .it's a fraction of what it was

Jim Gallagher – right

Man – it's, something has gone wrong

Jim Gallagher – somethings causing it for sure

Man – I'm talking the water management

Jim Gallagher – yeah some thing's causing it and whether it's water management or we want to look into that but (audience talking in background) or is it other things or is it a combination. Yeah - Again that's why we're here we accepted the petition, I'm not denying it. I'm not denying that water management has a role. That's why we have a choice to accept the petition or not accept the petition. We've accepted this petition and started to incur the expense of doing a lake level investigation to help answer that question. Yeah are we getting into testimony now?

Audience – yes

Jim Gallagher – so then I would

Man – it just seems to me that mention that there's environmental power this and this. In the heirarchy? We're the land owners, the property owners and change the name that the power companies paying you people to just control the water level. You're sort of, we're at the bottom of the list

Jim Gallagher – Yeah, no, no

Man – the folks are going to be ahead of us

Jim Gallagher – it's just a fact, it's just a fact. I didn't have to tell you that the power company they can tell you. They can shut off. They can shut off. They've been off, How long have they been off this summer?

Dan Mattaini – a couple months

Jim Gallagher - They've been off a couple months this summer. They can be completely shut off. So we're not draining the lake for them. They are, the fact of the matter is, they fund the operation of the lake. We don't operate for those guys. To the extent we can meet all these other things including lake levels, giving lake levels so they meet recreational. The drawdown, do the drawdown at a rate they can accept. We'll do that. But not at the expense of all these other agendas

Woman – testimony

Man- is it

Jim Gallagher – that was. It's all I'm going to cut this off. I think it's a question to me. We want to hear your opinions. That would be an opinion that we'd want to hear if you feel that you're, that you're on the atomic bowl that we respond to that as part of the hearing at a later date. So when asking to do it. Anyone that's making a comment please come to the microphone and we'll be able to record your testimony and respond to it. Not here

Man – I'm sure the mike you can hear my voice, so in the last 10 years I've notice a big difference with the water levels and how they've been going up and down because we lost quite a biit of our shoreline. My neighbor next to me at Camp Greenwood totally lost their beach. And they had a beautiful beach and how have they lost been standing there for so long. It's gone. Camp Onaway lost all of their beach, but what I'm asking is what is the lake level going to be. What is your standard that you're going to try to keep it at and how is the state going to try to correct that, this problem for the levels that keep fluctuating drastically for the past ten years?

Woman- can we do testimony (clapping)

Man- I can answer a lot of it but if somebody wants to do that

Jim Gallagher- yeah

Kent - Right, I'll definitely hear Yeah, I'll jump in here as the presiding office for the hearing. Under the rule that I referenced earlier the presiding officer is obligated to terminate comments if they get way off topic which I don't expect is going to be the case here. But we have a lot of people that would like to speak so it's encouraging to see as good size as possible. All right so we do have cards here filled out and I will call people in the order I received the cards starting with Helen Noel and that will be followed by Gary Cross

Helen Noel – 111 great wood path, unit Number four in Bristol. Before 1982 my husband went to one of the meetings in this area and he was told that Newfound Lake was one of the three cleanest lakes in the world because it cleans itself out twice a year naturally, and it has spring fed water, and it's glacier dug. Since 1982 this whole concept of this natural lake has been destroyed with this high water level 3 feet plus, the massive erosion. Pleasing stake holders who want the lake level higher at the expense of the large environmental concerns of the lake and its natural state. Before purchasing our lake front cottage in 1985, we rented a summer cottage and late day in 1970 at Camp Greenwood in Hornets Cove. The falls were submitted at the last meeting at the Red Barn in Hebron. Our camp beach, until the early 1980's, could accommodate a volley ball net, picnic table and the people gathering on the beach. Since the early 1980's the beach severely deteriorated to the point of no beach in the last two decades and dropping of the beach front by three feet. Storms, hurricanes, heavy rains would fall and gusty winds with rip tide wave action in the presence of three feet plus lake level elevations together – together, have wiped out our beach, created expansive new sand bars off of Wellington beach, off of Wellington boat launch area encroaching extensively into Hornet's Cove waterfront and also southerly between Mayhew Island and Cummings Beach in the channel. This sand bar has been rising. Septic tank leach fields are likely breached by the three foot plus elevated lake level. For instance, Wellington Beach was closed to swimmers two summers ago caused by elevated unsafe e coli levels. So when will the dam management of Newfound Lake start listening to environmental science and start managing the lake so that it maintains its natural state instead of impending crisis. The lake level, the lake quality has dropped, I understand, to one out of ten locally now, the one out of three prior to 1982. Thank you (clapping)

Kent Finemore – Gary Cross followed by Douglas McLean

Uh thank you. I'm Gary Frost who resides at 111 Greenland Path in Greenland. I've been coming to you a lot in the state but in any event I've lived at Camp Greenwood since 2012 and I know that six out of the seven summers that we have been there, especially in the springtime, that's when we see most of the problems that we have with erosion because the lake level is high during that time which is the choice of the dam folks and it's that time we get a lot of storms that come down from the northwest

because of that we get a lot of beach erosion from the high waves. I know there's probably an unintended consequence when the lake levels were lifted or raised that this is the unforeseen act as problem you probably didn't foresee all the property particulars coming down the power dumping into the lake that impacted the quality of the water in the lake so I do ask that the dam committee look at things such as that of erosion of these properties and see if there could be some adjustment in the level of the lakes especially in the springtime and maybe draw down gradually during the flood of the

Kent Finemore – Thank you Gary. Douglas McLane followed by Terry Murphy

Doug McLane - I didn't know if you got here early you had to speak early. (laughter) Um Thank you for coming. I'm sure it's a tough job balancing this. Watching this for a year and a half now and there are a lot of competing needs. I'm sure it's not easy. We were given a very nice tour buy one of the fellows here at the actual dam and much appreciated - a few points I'd like to make. Having actually this year marks 100 years and we've been lucky enough to end up with some of it and I'm 67. I do think, and it's hard to pinpoint changes, but I do think the feeling here is that the lake used to be a lot cleaner. The edges didn't have as much plant growth and the thing that brought it home to me about twenty years ago we started finding lots of Indian artifacts on the sand, on ?? beach, and my father was a well-known, amateur archeologist when he died 20, 30 years ago how would we never have found. We found arrow heads, axe heads, a couple thousand pieces of pottery. The state archeologist had been there and it slowly dawned on me that what's happened is the land is eroding, the turf line. A lot of the edges, especially near the Fowler River and the Cockermouth River, the natural eddys that used to rebuild the sand. I think that people have watched a lot of high levels that floods don't do a lot of damage to the turf line. I've seen floods so high that there was a chipmunk stranded on a mattress in our cabin and those high waters, were not exposing the tree roots like they are now and it gets a little counterintuitive and I'd just just like, what I'd like to submit to you is a graph, I'd even like to pass a couple around. This is not – this is your three graphs just superimposed and the yellow is showing the increase it's not three feet. It's between and foot and a foot and a half of a few months of the year two feet. I think twenty to twenty five years of gradual increase of the lake just got lowered two weeks ago I think that's correct, I watch it right off the edge of the dock and it's been high all summer. It's hitting the turf line getting we now have roots that are four inches sticking out 5 feet out into the lake. That was land ten years ago. I know the solution isn't easy but I hope you'll take all the input. Two more quick things I wanted to mention. I'm hoping that this does not turn into anything against motor boats even though I personally prefer canoes and sail boats, and the very interesting thing is the erosion on the north end of the lake started about, since Newfound Lake marina and more boats have been gone. Gone essentially from every boat in the lake back to very few boats and the erosion has been way worse with no motor boats. So let's, there's something else going on. I do think that the last thing I'll say and I think, I hope this where it ends up, is it's a counterintuitive thing to raise the lake, let's say a foot and a half. Logic would be that it would take the sand and sediment further out into the lake during the spring runoff but that it's just the opposite. If that were true the river, the water across

the river, the velocity drops and the rivers are dropping their sand and sediment load upstream. There's a man here, I hope he'll speak but I don't know, who's been working in Hebron for many, many years and he said I've seen the Fowler, I mean the Cockermouth River get choked off with sediment and the old eddys are no longer there. And I think that's what happened because while a lot of us are here complaining about losing beach, a lot of people are gaining beach. One of our properties is the old fishing camp, owned by the Fish and Game Department where they'd gill net the salmon that supplied all the hatcheries for the State of New Hampshire it's gained a lot in the last ten years. I know what it's like. It's a combination of high water and the change of currents I think. Thank you

Kent Finemore – Thank you sir. Terry Murphy and I apologize for butchering people's names. I Tessian, can't read the first name. I'm really sorry

Woman talking in audience.

Terry Murphy - Thank you for coming. I've been saying this thing for quite a few years. Given the beach sizes something you've done a really great job keeping all things constant. In the past when you're filling something about feet. In the old days more water went under the dam then went through so you would move your docks out two or three times and I remember that because by July you had a lot more beach front, then it kept on going out. But the big thing here is even in the six feet or five feet the real problem is that, since '82, we thought it was a really good idea to turn around and raise the level, half the lake a little higher after Labor day and it does a couple things. You're starting off in spring of the year, when you have the most flow coming out of the lake off these steep hill sides it brings all the organic material in. If you look around the edge of the lake and you look at the lake like a bowl and apron. The apron is collecting more and more sediment, and more and more muck around the lake, and that's going to foster more weed growth. In front of the tax issues abatements that we have to pay attention to, and there's a lot of different things. But the reality is, is that that is getting much much worse. In in the past, the owners of the dam, in the past before it came to the state turned around and would flush this thing down 2.5 feet back to the high water mark of the natural lake. We've stopped doing that and now what ever, now you want during the summer for boating, that's great, six foot or five foot but the drawdown in the fall has been discountinued and we're keeping it at the 4.5 feet. Four to four and a half feet. I haven't seen that lake down, way low, beyond 4 and a half feet. In fact this year is one of the years I've noticed it's rather lower as an average this time of the year. But unless you take it down in the winter time and leave a bigger reservoir to fill up, as well as to use the wave action to pull that material out and put it in deeper water where it can't really foster growth easily, we're going to turn around and we've already watched, if you're in the Fowler area, Fowler River area, remember how sandy that used to be? It's now full of muck. Don't blame it on over development. There hasn't been anything done along the Fowler River we're pulling the natural, organic material whether it's the Dick Brown brook, the Cockermouth River it's turned you around and then you've like a snow globe. To turn around and dribble around the edge of the lake and

once it freezes it drops and stays there and in the summer time it's stirred back up. It couldn't be stirred up before because the winter before they pulled the lake down to two and a half feet. You're getting it back down to the, it isn't as critical along the six and five foot area which is a good average. It's really what you do after September and bringing the lake down closer to it's natural lake even when you went up to three feet to four feet, things have gotten steadily worse in terms of the entire apron around the lake everywhere. You won't have a beach even soon because the lake is turning, it's coming out of the Cockermouth River and it's turning and you're getting more and more weed growth. Between the wave action, frost, cold and so on you'll have a better edge, you'll have better property values, you'll have easy boating because in the summer times it's not a real big yank. If you pick a number between six and five you guys seem to be able to hold that really well and then the next year hold to that. And the Repair of the dam and ever since you've managed it we'll all be out there. But I'm ok and then the issue about the fish going … well it's not before Labor Day and the fish spawn I guess is my point but we also turn around and watch the Fish and Game and stun the fish; and take a lot of fish out of the lake. And they strip the lake pretty good as much as they can as far as lake trout and salmon in terms of bringing it down to the fishery and that's fine. But more importantly get it down really on Labor Day and Mr. Fry, he'd pull all those batter boards out right down there at the foot of the lake and they would pull it down as fast as they could until October where they could try to get it down around there. If we could get it back to a little bit of that, even to try it for a couple of years then evaluate it rather than you know having lots of studies. The reality is they did it for over 100 years and the lake flourished. It is not over development, it is not the hillside, cause the last time I checked water runs downhill and it holds the organic material and it's the leaves and everything else that's in the woods down into the lake, and we're depositing it in the worst possible place. It's not the quality of water to take all of the quality of issues on the lake, biology in terms of oxygen and all the other studies that you've done. The lake is in excellent shape except for particular that floats along the water of the lake because if we allow it to stir it all up on the edge of the lake. So if you really want a clean lake and a productive lake it seems to me to move that back into the deep water that we back to the 2.5 foot or at least try for a while and then evaluate it. Thank you. (Clapping)

Kent Finemore – Nadine Hession to be followed by Greg Smith

Nadine Hession - I think this may be too high for me. Thank you. I'm being very selfish tonight in front of my house which is on Hebron Bay up in the marsh. We have a dock and a boat, there's about 3 and a half feet of just dirt now where the lake has been lowered way before it ever gets to my ___. We built the house in 78 and never had trouble but I'm concerned about being able to take and able to get our pontoon boat out off the lake because of that. Thank you

Kent Finemore – Greg Smith please to be followed by Jim Whittaker

Greg Smith - Good evening. I came here tonight not knowing what I was going to ask or speak about however I have to give you a little background. I've been on this lake for 70 years, on the lake, three

different locations, fifty one years in the same location. The lake is, I've got to get this number right or somebody might kill me, it's about sixty feet from my window. The last twenty years I've lived here year round before that it was somewhat fall, and different seasons. So this is my pet peeve, why I came tonight because my wife told me I better, she's sick of listening to me complain a lot (laughter in audience) Everyone that's spoken so far, and you're going to hear from more people, they're all right (all are correct), but it's different in different parts of the lake. You've got a lot of issues here to try and handle and bring it together and that's not an easy job. However, I'll take exception to a couple things. My big issue and the one I want to talk about is lack of consistency. You people hit on it today about being proactive versus reactive. The reason I mentioned I've been on the lake for 20 years year round. I look at the lake in the morning, I look at my dock, I look at the jettys, I get in my car and until last year and I go to work and I look at the Newfound Road. I listen to the weather and you don't have to be hear year round or be here twenty years to realize we're not managing this properly. I know you said you try to manage the outflow. I don't think you're doing a very good job at it. Back more years it was done better and I haven't got the data and I don't hear about the graphs, that's all night. What we worry about is when you get that storm and that lake moves up a foot in a day or two feet in a day. In the old days it used to come up and they got it back down fairly fast. That with, I don't know what the period of time is, if I missed the last ten years that has not happened. We're no snobs for coming here. Everybody knew it. I come home from work, Newfound River's trickling along. Next day it's still trickling. We know we're going to have 5 - this happened a year or 2 ago, well we're going to have rain for five days. Then the rain comes. Go back to work the next day the Newfound River is trickling along. We get all this rain and then it ends. They still haven't opened the dam. And we all know where that water is. And it's coming and it's coming fast. So what's happened over the last ten years is, it's the same thing that happened before, but once that water comes up and all that sediment comes in it does not go away for a long time. In the last five years I can look out in the water and it's two or three weeks before the water clears up and I'm on Whittemore Point. Water moves around out there pretty fast and the lake gets pretty clear, we're not in a cove we're right in the middle of it all. It will be two or three weeks before that water clears up. It takes forever for it to go down now and that's what's been happening over the last given period of time. We've had some dates now I think it goes back around (the year) 2000. It's different then. I don't know what the difference is, I don't know if people, if it's management and I mean the day to day management. We heard about the people from years ago that managed that thing, they were up in the morning looking at the lake making the adjustments, they were planning ahead. We didn't have this type of issue along with all the other issues back then. The last ten years it feels like nobody's paying attention to what's happening here and I think it's getting worse. I don't' think it's getting better. We've been fortunate this summer. It hasn't varied that much. We don't talk a lot about what happens in the winter around here, but we had a horrendous winter, we have water lots and now lake lots. I've got pictures of it at home from October 30th when the water was up for and all the debris coming out of the Fowler River. We get that all. It comes right over. During the winter the water went down so low and then it froze at different levels.

It froze earlier this year then since I've been living up here. Then the water started expanding and forming pyramids. I've got pictures of it's pyramids along the shore going up eight feet high with boulders this big around hanging from the ice, suspended in air. Then it goes away and all the people that are seasonal come back and they wonder why their jettys moved half way around the block (laughter in audience) and then it can be controlled a lot better. Thank you very much. (clapping)

Kent Finemore – Thanks Jim Whittaker followed by Fred Eichner

Hi my names Jim Whittaker and we've been a year round resident since last November. I've come up full times summers since last 10 years. I've spent most of them on Whittemore point. I'm on the beach committee on Hebron. I'm not here to represent that, I'm here to represent myself and some people I talked to. I have a question that might help me somewhat. What do you know exactly what the level of the lake is today?

Jim Gallagher – talking

Jim Whittaker – is it you guys look at the last week and a half it's gone down

Voice's in background (Peter Ames) - it's 5.17, it's 5.17 this morning

Man – so it has gone down? (Yes) so is that because of release or evaporation, was that planned?

Jim Gallagher – yeah. You see my chart it shows that releases we made to get it back down to the rule curve. That release was made by Peter, what three days ago for a period of about two days to get it down to that rule curve

Jim Whittaker – I was standing on Hebron Beach in the water a week and a half ago the waves were splashing at the tree line, going underneath and eroding it out. I was there just the other day and there's a noticeable difference. Two feet away from the tree line and it makes a major difference. So obviously what everybody is talking about would the height of the lake is a critical issue. I think that another thing is when the water's consistently high. The back pressure to Fowler River especially, I mean the Cockermouth River especially creates the sediment there. I think it keeps the Cockermouth from flowing farther out and it actually forces it around to in front of the beach. In the winter and the spring, as the spring came I was, I really haven't spent a lot of time there but the current flows right in front of the beach and that's what thawed out first and I think in terms of why it's coming that way. All I can think of is it's the high water pressure creating a back pressure to force it in that direction. So I'm standing with most of the people here that if you could bring the water level down to more of a reasonable height I think it would help everybody involved. I know you have a tough job that there's a lot of people to please. I guess the other thing too is that the grove down at that end is amazing fishing. It seems higher this year than it has in the last two years. I've always boated down there, that way, There's people, being on the sand bar like three hundred yards in this deep of water and it's that

deep all the way in to the point. So and the growth over there is amazing. It's like this far out of the water plants now. So it's a problem. I know you guys are working at it. I know it takes time but I'm here to act, some people that I've talked to and I do think a lower level of water would be very helpful in and of only keeping the sediment moving out farther where or keeping the erosion out too. Thank you.

Kent Finemore – Thank you sir. Fred Eichman to be followed by John Rohlfs

Fred Eichman - So for the most part you hear the concern of the residents on the lake as far as it goes because everyone's been saying about the levels of the lake rising, falling and rising in an inconsistent way. I know we have a State Rep here and we have one of our Senators here from this area, and hopefully another State Rep that's in the building to and I hope they're listening to the residents of the lake for their concerns and will take their input to the State to see what they can do with a bill, so.

Kent Finemore – Thank you sir. John Rawls followed by Jeff Frost

John Rohlfs - Hello I'm John Rohlfs, 37 Algonquin Path, Bridgewater. I'm going to be speaking on what I know about the Wulamat Beach, Camp Greenwood area. I first came to Newfound Lake in 1987, and I stayed at Camp Greenwood, and I stayed there, and I came back for another ten years, every year . and back then there were picnic tables on the beach, in front of every cottage. Double picnic tables one next to the other. I don't mean in a line I mean parallel. It was a quiet place on the beach, with seats for people to sit. There was badminton, volley ball, movies at night, breakfast and dinners on the beach and other games. None of that happens today. The way of life over there has been erased over there due to the high water and I look at this over, over thirty years, and it makes sense to me that the lake level should be lowered, to some level that was there back in 1990, or before then. Back to more of a traditional lake level.

Kent Finemore – Thanks sir. Jeff Frost to be followed by Michael McCammon

Hi I'm Jeff Frost, 738 Lake Shore Road, 53 years on the lake, since I was 10. There's a lot of people here, how many here. Let me ask you one question – how many here are what they call lake front owners? How many. OK. I hope every one of you realize that you own to the mean natural height of the lake. Now that's why I asked about that 2.4 foot question. Now, you know the plans here, right? I think we're gonna get a major offer. The question that I brought up 5 years ago hasn't been talked about, and it got dillied over, not sure I got a decent answer from them. How is it that the lake front owners have not been able to use their property because it's been flooded since 1974 when you took over floatoral (?water?) rights which in itself is a conflict of interest with a private and public sector. The public sector is the state of NH, the public only owns to the natural height of the lake and then after that the land owners own above that and the natural height of the lake is 2.4 feet. So anytime you've flooded and it's been flooding quite a bit I'm talking about flooding in '73 I think it was , I actually myself over on Adam's Farms I'm not sure what road we made a chain of people with a rope

with a guy named (Rosamisha___?) who was a big football player and put a rope around a tree which was so much fun until he almost got killed. Then it's the year 2000, in the early years 2000's we had two major floods one of them was, I know most of it, down in one of the bays, Cullen? Bay actually, was flooded,

I think it was owned by by the people with the Headmaster of New Hampton.

Their places got flooded…inaudible, trying to think of the name of it, was…(audience talking, yeah, Newfound Lodge)

and so my question is, why can't you at least give us landowners some section of time that's not going to affect the environment because obviously the lake has been here for thousands of years and fish have spawned where ever that level was in October ok. You say you need an October height for them to know where to spawn, so it doesn't get flooded or it's below the (woman's voice) Yeah let's figure it out it's real simple and now so why can't we get that and use our rights? Otherwise I don't see what we shouldn't al just get together and think about, have some class action suit because you've been denying us our land rights. We're getting taxed on this so we got unbelievable taxes. We're getting taxed much more than anybody else in these towns for that lake frontage and the State of New Hampshire does not have really the right to take our private ownership flowage rights that were done in the 1840's, 1850's and fraudulently by the way because what happened was the mills down at Lawrence and Lowell got those flowage rights from all 42 lakes. And told everybody when they got those flowage rights we get paid for those flowage rights we're going to start putting factories here and forgive our flowage rights and they never did. And then some people got pretty pissed off at that and they went to jail and they started tearing apart the dams. So the State got those rights from a private corporation and it's in conflict with our rights as landowners and you said basically the state only has the right, only up to the natural height of the lake and yet you've been doing this for years now. Particularly since the 1970's when you took over, when you changed your pattern and I know I've watched it for 53 years like everybody else here and I just think that my wall, I have a picture of it from 1910 and I think you might have seen my emails…

(Jim Gallagher acknowledges the emails)

…so you know what I'm looking at, if that falls in, I'm only four and a half feet from the lake. In 19, in 2003 or 4 when that flood came the water went over because you held it up so high in the fall and the winter then we had a huge amount of rain, a huge amount of melting that that water for the first time in my 53 years went up to our foundation which is at least three feet over the wall or 2 and a half feet over the wall. So if anybody wants to sign the petition I'll have some sheets back here if you're interested in trying to get some organization of Newfound Lakefront owners and hopefully your study will come to some fruition from listening to all these people and you will represent us as property

owners and actually do what the law requires, and even up in the Supreme Court of the United States said if you do damage from flooding that neither the public or private sector can do that to another person's property. And that's what you're doing, you're doing damage to our property (audience clapping)

Kent Finemore – Thank you sir Michael McCammon to be followed by Frank Bednaz

Hi Mike McCammon. Thank you for your presentation. I think it's given me a perspective realizing all the different aspects that go into these decisions, but like this gentleman here, my wall is in the water and when it was built it wasn't. It's 115 feet of rock and mortar, stone and mortar wall. I have a permit for its repair and it's been approved by the State. I've gone through six contractors in my four years of ownership. Many of them come and they look at it, they look at the water, they think about it. They bow out, no I don't do that kind of thing or you'll never get that approved with the State and you here horror stories about getting approval. I have approval to do it. When the stone wall was built and the ground and the property was extended into the lake it was long before any of this occurred and certainly the low water was at its former lower level, as has been discussed here, and the wall was built in the dry. The walls never dry now, as a result of, I believe, of the management that is currently in place. The bottom of my wall you can now reach in a full arm's length at water level. How far it goes in I don't know. One day it will drop off and most of my yard will be in the lake. In the winter time I look at it, the exact place that the rocks have fallen away from is where the ice is. The ice. It's there. It expands, it contracts. The lake moves and it pulls the rocks out. A contractor's ability to repair my wall in the dry would be an entirely different concept. A whole different ball of wax then what's it going to be to try to repair it in the water. And we've discussed it, Frank and I are neighbors about if we could actually share a concrete pier that's also part of this project in line with the same process. It hangs out on the edge. One day I fear that I'll look out and see Frank at the end of the dock and the whole thing will cave in and be in the water. There's no doubt, the consistently high level and the freezing in the winter time. You know people talk about boats going in. That's not a possibility. This is where the water stops at the lowering in the winter time and freezing and thawing has pulled the rocks out. So if not on a more consistent annual basis then at least the people, and I haven't heard from many people, until this gentleman talked about repairing the wall or some other structure but the ability to get that level down for somebody can work in 3 or 4 inches of water instead of 2 or 3 feet of water is really, or preferably even in the dry again, would be very much appreciated by those that own properties like this.

Kent Finemore- Thank you very much sir. Frank Bednaz followed by Ellie Lanske

Lonske

Kent Finemore – Lonske sorry

Frank Bednaz - Thank you for the presentation this evening, every time I see it, I've seen it a couple times, it's educational. I've been on the lake for 42 years. I live on Arrowhead? Point right next to Mike.

We take the brunt of the wave action coming down the lake every day, I've been there. It's like 3 or 4 big waves are smacking on his wall. The effect of the water and the ice has taken the entire bottom of the concrete dock away and good thing there's some rocks under there because - take a picture right underneath the dock and that's happened in the last 25 years. Right now I'm also trying to repair, we're trying to repair the dock, we're together on this, and we've had contractors - none of them are terribly enthusiastic when they look at the logistics and the issues. But I've been trying to repair, even before Mike was there, I repaired my wall back in the early 80's. I could walk there in the fall. They put the new cement wall in in the dry, and on 2 or 3 occasions I've gotten permits since then only to have a contractor bail, have to decide I'm not going to I can handle this. Or, we gotta get in there and do this while the water's down. Rainstorm. 2 and a half feet. Nope can't do it. End of story. And so you know this is the fourth permitting process for this repair on the dock for me and I'm hoping we can be successful. We're not talking $10,000 folks. It's $50,000 to fix this. And I showed this to people what the deal is because, you know you try to protect your property it's the same way the hydroelectric pays you, guess what we're funding the communities. Big time. Our taxes are not small we just want to maintain our property and we'd appreciate your consideration. We need to go back to the 2.4 feet ok it's where I think it needs to be. Because again in the fall you can walk out to my property and if I could make my repairs I could, not anymore 2 feet of water 3 feet of water there. Thank you (audience clapping)

Kent Finemore – thank you sir. Ellie Lonske followed by Senator Bob Guida

Ellie Lonske - Hi I guess I want to, tell you what's been happening in Hebron for the past 6 years.

So I want to endorse the comments from Doug and Terry about the erosion at the Hebron Town Beach and so forth. But, now, I have a list of ?___? I wrote myself, and by that I mean Georges Brook. Georges Brook comes into the lake in the northeast corner and it is a narrow channel, and I've been on Georges Brook at the mouth of the brook for 50 years and I remember we used to draw water from the brook and the brook was so low in the winter time and with the ice the pump would get frozen, but when spring came the brook was scoured. And it was sandy all those years and there were rocks and sand. One year when I was young enough to wear a bikini I was out in the ?bottom wake? because there was a weed. When I was standing rock to rock and the rock I was standing on started to walk away. I was standing on a snapping turtle large enough to transport me. So that's the back ground. What's happened since then is this isn't about the high water in the summer, though that's a serious matter. Back then the water was dropped very low in the winter and also back the, (somebody who was a bridge engineer) used to trap beavers. And so in recent years I have been letting beaver dams, or what we typically call the damn beavers (laughter), but I noticed this spring when the water had

already been brought up and then there was a heavy, heavy rain event. It was so heavy that the beaver pond filled up and finally after years there was a torrent (current?) coming up under the bridge of North Shore Road. The water was so high that instead of scouring the brook it was riding the top of the brook. So this year the ?_____? task, I'm not only the genius out in the you know I'm doing something like this with the lake creek and I feel like a total moron even doing that. The only good thing is all the stuff is all the organic stuff I get to put in my compost and the other plus side is the fisherman tell me that the fishing is better. But what I would ask you to do is to, let the, I understand about the fish spawn. But certainly in November when the fish episode, that's when all their sex is behind them, then let the water get low enough or something achievable enough so we can get the heavy wash in the spring. And once again scours all the silt. Thank you very much (audience clapping)

Kent Finemore – thank you, again Senator Bob Guida followed by Lori Lerner

Senator Bob Guida - Thank you for the opportunity to speak. I'm not going to say a lot. I'm doing a lot of learning and listening tonight but I've already texted my assistant and asked him to help us monitor what the department is going to do to solve the problem. Historically it sounds as though the one or two that have been here a long time, remember the river, the lake being low and the conditions being much better and the cessation of dropping that lake level appears to cause these problems empirically, these folks with the scientific part of it, I'll be watching them, I'll be your advocate. That's my job and thank you for the opportunity to speak. (audience applause)

Kent Finemore – Thank you Senator. Lori Lerner

Lori Lerner - In the interest of time I'll defer mine to written comments.

Kent Finemore – Ok, well thank you very much. Ok Miles Nogelo - is that how you say it? - followed by Rick Van de Poll

Thank you for being here. I'm Miles Nogelo, from 36 Crystal Springs Road in Hebron. We've been summer residents for about sixty years, and have a little bit of perspective on what's going on in the water, which I think is what's the most important aspect here. The volume of it and the quality of it. I spent every single summer for sixty years snorkeling and scuba diving a little bit on the west side of the lake and you'd be horrified if you saw the change since the early 1980's. The weeds as people have already said are spreading. This year there's a green, possibly a transparent thing attaching itself to leafs and ____?, and if you get out the lake it's like science fiction you've got to go take a shower. And the worst thing of all I think is the silt on the bottom of the lake and around the edges. It used to be a little bit of that, thirty or forty feet out, it was basically a beautiful sandy bottom. Pristine water. Now you can't go any place, and I go out around once in a while and circle the lake. The silt is, it's not even muck, it's not even leaves, it's just like, it's just like sediment and it's between an inch and four inches deep everywhere. It's really changed. My neighbors know?, ___ since the early 80's, it all started to change and it gets worse every single year. When they started not lowering the lake down in the fall to

much lower levels. I'm really happy to hear people agree with that. It's an important aspect of it. (audience clapping)

Kent Finemore – Thank you sir. Rick Van de Poll followed by Jim Koch

Rick Van de Poll - Hello Rick Van de Poll I live in Sandwich, but I'm here representing some of the north shore land owners that have asked me to weigh in on this and maybe some of you have heard me speak at the Red Barn talk this summer and also I appreciate all of you coming out tonight. This hearing, I think, is a significant step in the right direction. I'm an Environmental Scientist and have been for 35 years, Hydrologist and Wetlands Scientist. I've worked for the Town of Hebron in studying some of the Cockermouth River delta area. I have looked of course along the north shore at erosion sites this summer. Doug McLane and I documented 22 different erosion sites around the lake. I have got pictures and GPS of that and will submit with my testimony in writing. But what I want to do is just summarize, what, in all the work that many people have done before me and all the comments I've taken over the last several months, in fact for a year now, that I believe we have some consensus, if I can say so. And yes, I'm not necessarily representative of all land owners on Newfound, but we have a lot of shore front owners as the hands went up and I think we've got a consensus here that there's a problem and we need to fix it. So here's what I notice, on the basis of the following factors; 22 erosion sites around the lake, turf erosion undercutting at a certain depth in a lot of those sites indicating a certain zone of high energy activity, alright, so that, I'm looking for what would the target level be if we were to lower it. 1982 and 2015 we have this wonderful chart which Jim shared with us in the slide show and whereas he didn't focus on this, I've highlighted in purple the amount of time that the fall levels are actually above the target. I also paid attention to the standard deviation curves because those include normal storm events that happened during that time period. And I think Mr. Murphy is correct in saying, and I've been saying this for quite some time now. In the fall is really one of our greatest times of concern, relative to excessive rainfall, a loss of trans evaporation, shutting down as it were, a sort of metabolic functions of the eco system, thereby increasing runoff rates with the subsequent accumulation of nutrients and so, from a summer's worth of growing activity. So that's another factor that comes into it. The timing of the snowmelt. We have to face the fact that going forward our snowmelt will not be occurring at the same time it used to. And so some of the stuff that we're seeing is I believe embedded in changing climate. We need to pay attention to that and one of my requests that I'll list in a minute attends to that. The depth of the deposition deltas is excessive. In the short five year time period since I've been working for the town I have documented several, sort of organic mats floating out from the Cockermouth that have deposited out in front of the mouth and largely because the river at a higher water level doesn't have the energy to deposit it any farther. That has resulted in an incredible increase in aquatic bed fine material. There's larger Baltic brush, there's also a lot more pond weeds. I would say several acres of floating subversive plants have grown the last few years and that has to be a response to increased silt, increased nutrients and increase, of course, of organic materials that are not going out farther in the lake because of the high levels. So that's

another one of those attributes that are demonstrative in terms of how things change here very quickly. The spawning fish, with all the respect for fisheries and the round white fish and I do a lot of work with Fish and Game on their endangered species. I was working with them today on a site. They have historically, pre-historically, adapted to variable water conditions much more variable than they are today. At other dams, where the round white fish has seen pressure form over fishing and a variety of others factors that have sort of limited their population, the spawning will take place as it does in variable conditions moving forward. So I wouldn't put that high on the list, of course when you're talking to John or Ben maybe they'll disagree with you but, that's something I believe is on the lower level of importance. The nutrient residence time, this is something we haven't talked about but somebody mentioned lake flush, and the time it takes for nutrients to go through the lake. If there's less inflow, let's just say the velocity of river flowing out of the Cockermouth, doesn't have the opportunity to deposit those nutrients in and having those nutrients being metabolized in by the phytoplankton and the zooplankton, in the deeper water columns, then of course the nutrient residence times are gonna be slower. And that's something that I think is largely responsible for microsensis algae and all the other filamentous algaes that we see that are coming in at a much larger and faster rate. So that's another consideration is what the nutrient residence time is and that's not just how fast it takes the lake to flush it's as everybody knows it just doesn't happen overnight. Before half a year and it's not really done. there are pockets where those nutrients will reside and end up getting taken over by aquatic plant growth for example that will then change the micro chemistry in a particular cove and all those things are changing at a much faster rate than they used to. At least by my observation. And then last but not least the safety of downstream users. I think with enough of our good communications going forward, that safety factor can be dealt with. Whatever level we establish. Again I'm not going to put a very high ranking on that. So here's my proposal. Jim, I mentioned that I was going to come at you with this, so here you go. Lower the November to March drawdown to 3.0 feet. It's not natural, but it's a little bit…and I'm talking about a little bit in step-wise. Ok this is, this is a proposal that provides some demonstrative and observable feedback mechanism to see if in fact we're affecting any change. If we're going to go all the way down to natural lake level another .6 feet or so, we can do that too. But I'm suggesting a step wise and believe me, there's no, it's not like we're going to save the beaches by stepping it down 2 feet let's say, because there are a whole host of other factors that can cause other things to occur that we don't like, like swimming quality, water quality because we lowered it too far. So anything that's dramatic in terms of the stabilized, I should say re-stabilized system, is probably not a good idea, in my opinion. Set the chart, Columbus Day to March 30th target at 3.5 feet, again step wise, alright and then that gives you another foot and a half off the average in terms of spring storm after March 30 to accommodate some drawdowns as needed, as those snowmelt and spring storm activities take place. Set the June 1st target to 5.5, about a half foot down. You're doing it as the gentleman said before, a great job of keeping the summer the June 1st target. That's the best, in terms of the curve data, you know, that's your most successful. All right, that doesn't necessarily take care of wake boats and boater's wakes but it will help. Even six

inches will help based on the turf erosion depth that I've measured at some of these sites. Six inches will mean a lot in the summer time, but of course I'm banging on a fall drawdown as being more important. And then recalibrate your model, which you explained briefly Jim. Recalibrate every five years should be a five year look back and a move forward because it's going to change and it has changed right? We know that to be true. So we can't necessarily plug in variables into models if some of those variables are changing on a regular basis. And then complete the necessary monitoring tasks which admittedly has all kinds of budget implications to it, but there's some basic things that can be done and I think a lot of people, I mean I'm all for anecdotal stories. I'm all for having these reports coming about lost beaches or whatever it is but I'm not seeing data. And I'm a scientist and I like to see data and I want to see, as I said in February, and I'll say it again, you know, monitoring stakes and ground stakes set and whether they're for vertical or horizontal changes in certain high energy sites from the 22 or more then at least we've got some data moving forward to and test back to see if our job has been successful. If we need to ramp it up and bring it down to 3 instead of 3.5 on Columbus Day. At least have a sense we're actually doing making a change happen in a positive way. Thank you very much. (audience clapping)

Kent Finemore – All right, Thank you sir. Jim Koch followed by Steve Hering

I think you're talking about Jim Koch.

Kent Finemore – I'm sorry (mispronunciation)

Jim Koch – That's OK. I'm Jim Koch from 29 Shore Drive that's north in Bridgewater and formally Hebron and I'm glad we're not here to talk about milfoil, and thanks to…(hard to hear) we don't have that issue. We do have an erosion issue I've heard a lot of people talk about, a lot of people on the lake relate to the sedimentation that's happening, and it comes from the finger lakes and it won't be long before we have weeds significantly encroach, actually milfoil, because that sediment precedes (something about the sediment) and it springs up. But I really came here to talk about, in spite of all of it, I want to talk about the boats and I am a boat owner, I am guilty, and somebody gets up and he doesn't think boats are part of his erosion problem. Boats create a wave and that wave travels for a long ways. In fact, if you go to the middle of the lake, where boats traffic is. That's where you're going to find most waves. So I would like you to study as you go forward to potentially look at boat population, the size of the boats, and maybe even talk about wake boards being on a boat that's actually engineered to design a wake for surfing on. And the reason I mention this is my specific issue is I have a bank, I live on a steep bank that has about twelve steps and when the water is high I get erosion on that bank. And over time, it's not immediate, I suspect the boulders are going to come loose I'm going to have to haul them back up and put some spikes through them and maintain them, so I'm trying to avoid that and I just wanted to testify that I do see that the high lake levels are causing erosion around the lake and if you would please look at, take a look at the boat wakes as a potential problem that would be appreciated. I did look at a study that was done on the intercoastal waterway

and they actually translated a formula for gallons of gasoline used to the erosion that they would expect and the cost of maintenance. You talk about modeling, they used modeling in the intercoastal waterways and they also, for about three hundred dollars, they showed in Popular Mechanics, you can put in a wave monitor to monitor the waves. Cause you have a modeling situation, where you can take rain and calculate how much the water's going to rise I'd like to see this wave monitor, when that first boat wave kicks off and the ice goes out, maybe that's when you want to take that lake down that first 8 or 12 inches. So I guess after having looked at it, thinking that boat wakes are an issue, even in Hebron, that I'd like to see the lake taken down in increments very early in the spring, it's, as early as possible maybe take it down 8 inches or a foot, maintain it there, and/or maybe take it down a couple more increments to whatever you think is best. Thank you

Kent Finemore – Thank you sir. Steve Hering followed by Martha Marshall

Steve Hering - Hey good evening. My name is Steve Hering I live on Brookdale Road in Bridgewater and I've been there... First, very happy to see you come up and hold this hearing, I've been, this is something I've really wanted to do for quite a while and thank you for coming up here. I've been coming up to Newfound since the 1960's and I'd like to think I'm not that old I was just quite that young at the time, but in any case, I've also been fortunate enough to have been on the same stretch of beach on Newfound for that time and looking back at how the lake bed was back in the 60's, 70's and 80's in front of us and over in the area of the shallows which is off the ____? At the time you could probably equate it to a shoreline in Bermuda or a shoreline in the Caribbean, it was that clean and I think the bottom was pristine and very much free of sediment and vines.

Today it's quite a different story. You look out now and what used to be pristine white sand at the bottom of the lake is now dark muck and there's weeds growing now where I honestly never, ever would have envisioned weeds to actually be growing. This has all started since the late 80's, early 90's and it's been getting progressively worse every year. The question is what has changed. Newfound is a very windy lake. Anyone that's been around the lake for a long time can certainly understand how rough it can get as far as the lake goes. Anyone that hasn't been around for a long time can think about the wind farms that were going to be built around on the mountain tops around the lake. Newfound is located in a very geographically windy location. Wave action is a fundamental cause of shoreline erosion. The sediment that comes down from the rivers and gets deposited along the shorelines of the lake also can benefit from the wave action as well, from a positive perspective. With the back wash of the waves, people could think about is undertow in the ocean, dragging along the sediment that's at the bottom of the lake carrying it out towards the drop off. Around a good portion of the lake that drop off exists at roughly five or ten feet of water. It varies a little. Prior to the dam having been built, that water level was roughly, say about five to eight feet. That wave action around the lake is noticeable to roughly three, four, maybe five feet of water before the energy of the waves gets dissipated too much and it doesn't have the ability to carry the sediment off to the drop off. So as

the wave action with the higher water levels along the shoreline , can pick up the organics and erode that away from the shoreline. The wave action at the same time has a positive effect, in that it can pull that sediment back off the lake bed into the deeper waters where the sunlight has less of an effect on the organics and less likely go to weed development. Lowering the lake level by six inches, a foot, two feet, getting us back to the natural water level which today is roughly thirty inches of water, the natural high water mark, 30 inches of water maybe 35 or 36 inches of water today, approximately, I haven't measured it exactly but it's in that ballpark, and bring that dropoff back down to approximately the 6 foot level. The sediment that we're struggling with now and dealing with now would be carried out over into the drop off area where today the wave action cannot perform the beneficial function of ____. Lowering the lake level will also drop it down to a lower level where it has had more of an effect over the centuries a lot of the organics have already been depleted from those areas and we're left with larger gravel and larger stone in some cases. So I think in this case the State of New Hampshire is probably our worst enemy and I think the causes of what has been going on and why we're here tonight, the cause of that I believe is on the graphs and charts that were displayed earlier and I also believe that the solution is on those same charts. Thank you very much. (audience clapping)

Kent Finemore – Thank you sir. Martha Marshal - That is the last card I have

Martha Marshall – (39 Arrowhead Point Road) Thank you I did not intend to speak tonight. I've heard so many different things that I just felt the I need to, I live on Arrowhead Point between Greenwood Cabins and what used to be Turners Cottages and thankfully I'm grateful that our beach has not changed at all. I've heard a lot about what has changed. I know this is a water level meeting, and I know that from my perspective it would be much better if the water was dropped more gradually because we have seen this great fluctuation. But in the 24 years that we've been at our property I have seen a lot more growth and a lot more trees come down. We also own about two hundred acres in Hebron and the property next door to us which is in Alexandria, 600 acres was clear cut. And I am just so afraid of what that is all doing to the lake. We renovated, about ten years ago, and we only cut down a couple of trees to add on to our property. But I have seen, what used to be a campground, down by the beach is now 200 cottage units, paved everywhere all the trees cut down. I cannot believe that there is some connection between that and the Fowler River. And if you have done a study, that's great, but I think more studies need to be done. As far as how many trees can be cut down and it just seems if someone cuts down a tree they get a slap on the wrist. And once trees are gone I think that's what is contributing to the sediment in the lake. I don't know how else to explain it, but if you lived around the lake, drive around the lake, you see all these nice new homes. Trees are cut down, all you see, look at the ridges, they're cut down. Where does all that sediment go? Into the lake. And I just think that trees are a filtering system. I'm not an environmentalist but that combined with the nice green lawns and the fertilizer that's being used on them. I'm just looking at something to put together. So (audience clapping)

Kent Finemore – thank you. So I don't have any more cards so everyone that has asked to speak has spoken. The public hearing is still open. If you're going to speak, yes sir, just please do use the microphone and say your name if you would so we can get it on the recording. Thank you

(Doug McLane) Thank you. I wanted to make a comment before too many people left just quick review that there's a mechanism, an RSA, a state law, that gives all of us the right to petition the Dam Bureau and what we have to remember is that in 1982 a petition was filed, two hearings were held at the Bristol Church. I wasn't there. There were two hearings and the public recommended raising the levels so let's not scape goat the Dam Bureau. They did what they were asked to do in 1982. We probably should have, it only takes ten land owners to petition the State. We got 35 land owners to sign maybe that should have been done 20 years ago but I guess that's water over the dam and we should move forward at this point and support the Dam Bureau. They're here to help and I think we have to be very careful to help them get information they need to do a vote. Thank you (audience clapping)

Kent Finemore – Yes if you could just say your name

Jim Frost, in 1985 they actually had a meeting there was about 12 or 14 people cause I got that from you I think, the last time they had to raise it and that's when they did change the raising of it. I don't think that really changed much since the 1970's because before the 1970's they used to lower it down to the natural high mean and sometime 1930's they brought it down nine feet under the old power company, but there's a couple of things maybe the environmentalists, you're, oh, right here. Did you take into consideration acid rain, cause I lived and worked with the Hubbard Brook research and they actually bought my property. The other thing is everybody's correct, since 1980, I left in 1980, came back in 1991. There was at least three times more properties on the lake from when I left in 1980. There had been a huge amount of development obviously, a lot of runoff there. I really appreciate everything you're doing, I think it's advisory, but the only thing you're doing what you're talking about environmentally, a thousand years ago when there was no property on the lake let's say back in 1700 property owners still had the same property rights that they do today. And so property owners have to have, particularly the people like us that have our walls and other things that are, mine's 110 years old. I've got a picture of it in 1910, supposedly it's second oldest property the house that we have on the lake, at that time, so that rock wall had not been able to see the base of it and I had the same problem with the erosion underneath.

I haven't been able to see the base of it since 1970's and I've been able to point up parts of it but literally for me I'm four and a half feet from the lake. When that thing goes down I get washed up, including my house out on the lake. Property owners have rights, legal rights, and legal rights is we own to the natural height of the lake. So everything else excluded, nobody else under the law can take those rights away. That's been tried again and again all the way to the U.S. Supreme Court. We need some relief here, I'm not asking to bring it all the way down to the height of the natural lake for ever

and ever. I'm just asking for a period of time where we can exercise our rights as property owners to do what we have to do on our land. The rest of the time, you ended up with flowage rights, and I know from 1970, when you got the flowage rights, we had this debate on that, from the power company, that it was never offered back to the property owners. So that literally the State of New Hampshire took property, property rights without compensation and nobody's been able to disprove that for me, so what I'm saying here is, give us some relief please, because we don't want it to go to ?to court?, and I will. And I'm not trying to threaten or anything but it's between my rights and my wall and my home that will go into the lake, or this debate about a foot here or a foot there. That's all I've got to say.

Kent Finemore – Thank you sir yes

Terry Murphy - One last thing. First thing you have a point, if you go back in your deed, fortunately or unfortunately the deeds specifically say flowage rights, flowage rights up to 7.0. Whoever owned the dam at the time has a right to turn around and raise it up to 7. If it goes over that then you got a problem. However I find that it points to the north. I always find it amazing that if you guys got a breakwater out there right now, one agency at the DES will say you can't put rocks to stabilize the shore front and you're going to have to put a lot of them, but you can't do that even though you're above the high water mark so the reality of it is the 20 foot setback rules are out there now that's neither here nor there. The major thing, and unfortunately I was involved to some degree and at the time back in the 80's, I, everybody at that time thought it was a really good idea, in a meeting like this only even more in the basement of the church, I was there, house that it was a good idea to keep the lake higher. Of the one thing I believe we've made a huge error that we paid for over those years is by turning around and in the 80's and eventually getting it up so at the fall of the year we'd have it around at 4.0 so I think there's the biggest error. Before you know, keeping the water in the lake and before the dam was very, very difficult. You've also got issues associated with water getting out of there. Because not of the dam but because of the bridge abutments in front of the dam, where you drive over them on the west side of the lake. It restricts how much water will go through it. I don't think if the dam falls over I think rightly so it slows down how much water can get out of the lake. So the reality is that where I believe the mistake was made, and I've regretted this for some years, about turning around and keeping the lake higher in the fall has been really the down turn for Newfound. And the story about sedimentation that Steve said and Hering said relative to keeping it closer and closer to not using… Listen once the lake is raised we really need two things to happen to have a really nice environment to turn around and foster tourism as well as lake values and properties. You need to turn around and manage the hillside and Newfound Lakes Association really does a pretty good job of that. Bridgewater, Town of Bridgewater has slope and soils you have a 100 acres over 15 percent you got a tough lot and you can't subdivide it. People voted on that back in the 80s. But the problem is that it's not that way all around the lake. Taking care of the watershed is really important.

The second area was where we're calling shoreline. We thought it was a really good idea at the time to have more boating after the fall, the reality is we want the lake high for that reason is really working against having a clean bank along the edge of the lake. And I do believe that if you turn around and lower this thing back down closer to get to the 3 foot mark, I would even go for 2.5, but get that down as quickly as you can after Labor Day and I hear a commenter say that you can't do this. Somebody did this from 7.0 on the lake, 7 feet higher and would rip this thing down to 2.5 feet by mid to late October and I remember one time we weren't even around and now we're trying to get their boat out of the lake in the middle of the channel. But the reality is you just get some consensus to get it down even for a short period of three years to be able to same time to study what they're doing at present to continue and see what impact it has may even help with the management of other lakes. But if you're going to have the dam there it's no longer a natural lake.

If you're going to have that burden put upon the state then it's not only taking care of the hillsides, and the runoff off the hillsides, especially with the steep slopes we have. It is also management of the level of the lake and I think we made a big mistake when we raised that level up to and kept it up in the winter time to four feet and by the way it's remarkably difficult to get the lake in the fall down, sometimes it's easy. I remember when they fixed the dam and they put a cofferdam in front of it, it didn't last too long because they drained the lake down very, very low and when they went to fill it they turned around and washed it out and it was one big heck of a rainstorm especially when the ground is frozen and the water comes up like a rocket.

And with it comes all the sticks, organic material and dead animals and everything else that wash into the lake and we're storing it in the wrong spot. I would really, really like to see this experiment at least, if nothing else, to look at what impact that might have and that might make some real changes not only here but on other lakes as well. Thank you

Kent Finemore – Thank you sir. (audience clapping) The public hearing is still open this one yes sir

I'm Boyd Smith From the Newfound Lake Association

Kent Finemore – thank you please

Sorry Boyd Smith from the Newfound Lake Association. And I actually have a question. I want to catch you. It's about process you know you got great testimony and I appreciate you coming out here too and it's a challenging issue. But all I know at this point and as we've sort of been assigned the task of sharing information was this public hearing and the written testimony by the end of September and what I'm curious about is what happens down from that? So before we disband for the night perhaps you can talk through some of what happens you got a hearing and you have to think about it. If you could talk through to the endpoint of this process I'd like to have you talk about it that would help me understand where this is going. Thank you

Jim Gallagher - The, we have a lot of testimony now we have to consider and respond to and generally respond to in this conference and so that's going to be a challenge and there is an issue I guess I have and no fault assuming from any of you folks but for sure this hearing and how it was publicized so I am concerned that we don't repeat what Mr. Frost said when this decision was made. It was made by the folks who were there, the property owners were there in '85 were there with the abutters. It's a small, apparently a small group, this is not a small, small group. Appreciate you all coming out here at all and providing some testimony but I think we are going to need to reach out and have another hearing about what we've done it's going to be a challenge here because of the size of the lake, to get a survey of the property owners. We have now a proposal, a very specific proposal that we can circulate to get the feelings of the other, other property owners and that's what I was hoping to come out of this meeting. I will let you specific task and I think we have that. I think there is opportunity to modify that some. I heard certainly, from you Terry, about what we can physically do and I think to address some of the other concerns with fish spawning and that sort of thing is going to have to start in the fall. We are going to have to start it in September and if we wait until October very likely we won't be able to do so some of what needs to be done. We have done a lake level investigation we did, a really long one, where we did an interim plan and we enacted that for about two years and saw with plusses and minuses that sort of thing and so that's how I see sort of this going. This is a plan we want to see for three years and plan to revisit it three years from now. So I think Boyd to answer your question just to make sure we're not, we're not neglecting the use of the lake to the many other shore front property owners who aren't here, we're going to have to at least survey them with a choice being, or just their feeling of this interim plan versus the current plan of operation. You know I, based on work load, I don't see us doing that before October. I don't see us getting people to respond and to respond to a poll with why they want what they want. Because it's not necessarily majority rule and that we get 51 percent say one way and then 49 percent say the other doesn't necessarily carry the day. How like you folks have experienced the current plan one really outweighs what the majority has to say but we do need to hear that and just saying it's going to take some time to set that up and do it.

Unknown speaker (Frost?)- All of us can't to tell you what to do with the flow things, you know, but the fact is the State of New Hampshire there was a court case in the 1930's where someone was going to give up their family's great pond. And they tried to get out of the whole water problem. And the judge said sorry. All's you have the right to is the natural height of the lake and you can't force anything with them no matter how many of you want that done. So in your focus, is what he's talking about environment, but the other focus is that you're, you have to represent the law first. And we have the law on our side as far as property use. Ok. You own the flowage right now and you're not a private company. You're the State of New Hampshire. So your interests are to the public. The public and the property owners first because that's their law that they have on their side, now obviously only 47 of the water flowage is used for power, 1% for ___, and 49% is used for, and this is according to your chart, for recreation. Ok. But all that around we still have some rights, somewhere, and you've got to at least extend to us, consider us on what everyone is asking here. And you're right, those flowage

rights have been used for all different heights for many years, so it's basically been that for years and years and years they hold the lake to the natural height. I mean I've got pictures right here. It's called Crescent Beach, which I think it was Follington? Beach and the State Park and all. It's out, you know. I've got old pictures of the house I bought that the people had from about 1910 and it shows, almost every year, that they let it out very low. Of course it was let out for the fishing, we never had an environmental problem. I think it's a lot of different things that are going on and people are tired there's a lot of boats on the lake. From the 1960s to right know there's probably 20 times the boats that's on the lake. so there's a lot of different things you guys have got to handle. First of all you got to be considerate of the laws that are out there and you represent the public you're not a private owner but the power company's the private owner everybody else was a private owner and you're the State of New Hampshire. Thank you

Jim Gallagher – something response to your testimony given but let me speak to that. That issue about private owner's rights that is part of our lake level investigation. So we're not trying to, we have to examine who has rights, what those rights are and if those rights are being violated, and with our order, or, you know the Decision. That has to be presented to the Governor and Council and presumably the people whose rights are being violated.

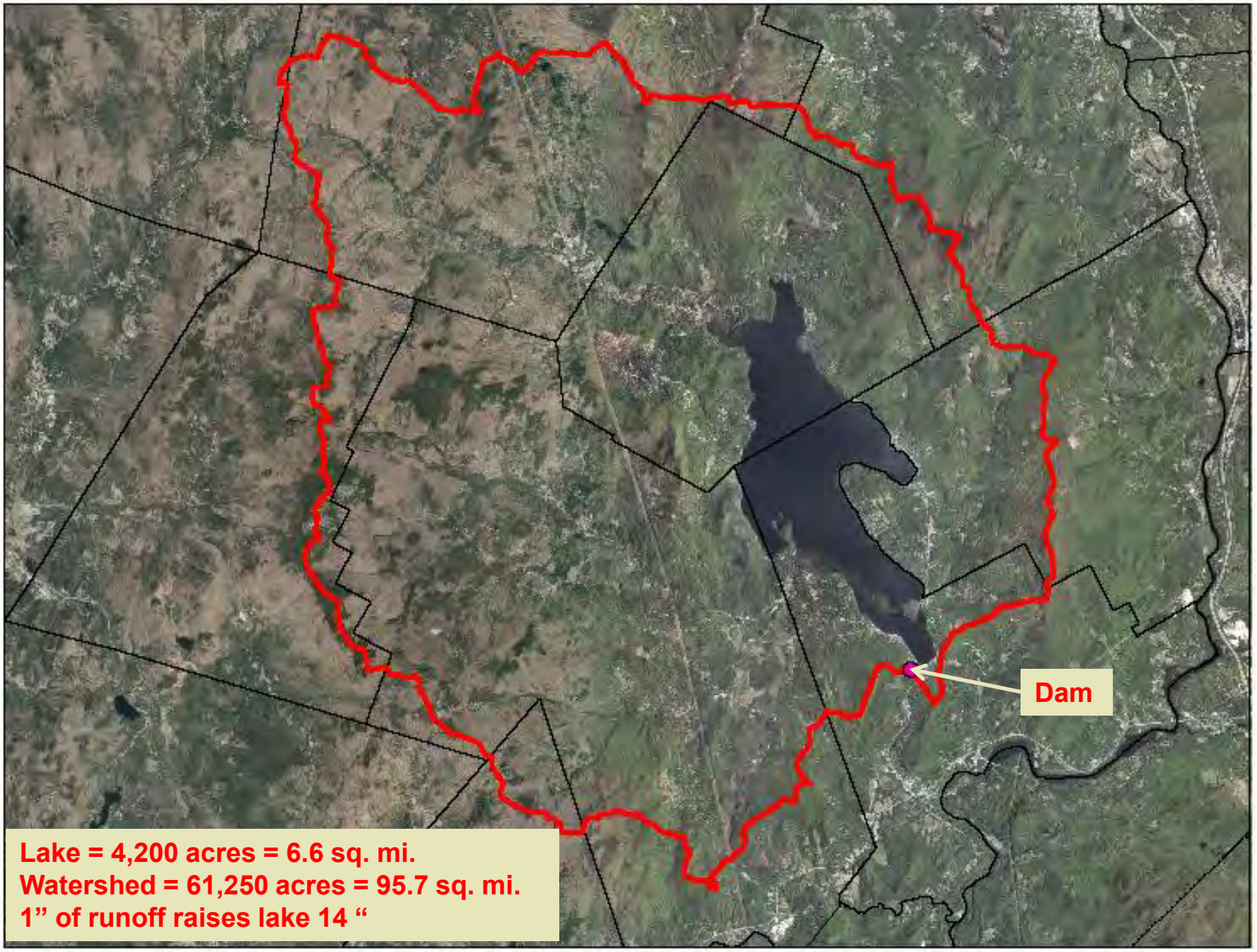
Unknown speaker (Frost?) – One other thing, I have _____. I think I sent that to you in 2000 when we had all those floods. I can tell when all the flooding happened here and all these floods downstream. I mean Governor Lynch at the time saw all the damage, a lot of damage. It's funny that he, that I was thinking that all so keeping it that high and in the 2000's that's when it did cause a couple major floods and it's been caused a lot of damage and people who took their ____ out of the lake. So since the 1970s I can count at least five major floods that have happened under the management that you know basically you're controlling the flowage rights I mean you've got to think about what's the public above. I mean thank you

Jim Gallagher – Thank you

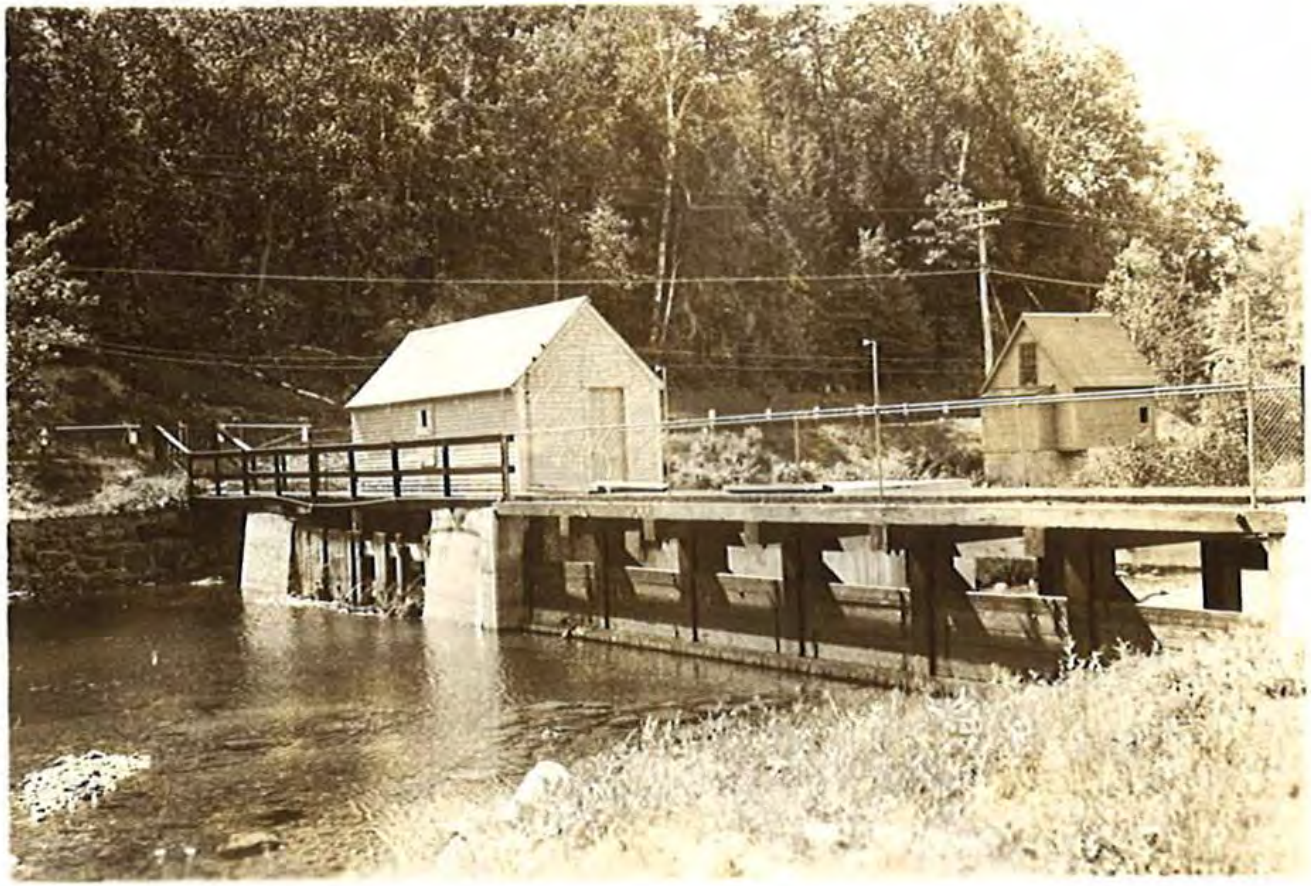
Kent Finemore – Thank you. Further testimony from the public hearing. Once, twice three times. Just a reminder that your testimony. That comment period ends on September 28, 2018 at 4 pm. That's the current closing date. If we're getting a lot of testimony I will extend that if necessary. Having said that I will close the public hearing and call this hearing adjourned. Thank you so much for coming out. Thank you (audience clapping)

History and Current Practices of Lake Level Management at Newfound Lake

James. W. Gallagher, Jr., PE
Chief Engineer


Dam
Lake = 4,200 acres = 6.6 sq. mi.
Watershed = 61,250 acres = 95.7 sq. mi.
1” of runoff raises lake 14 “

History and Water Rights



1848 – dam constructed by Bristol Water Co.

1934 – owned by Newfound Power Co.

1938 – owned by PSNH

1973 – PSNH sells dam to State of New Hampshire for $1 plus $50k for needed repairs

States acquired all land and water rights from previous owners:

- 2.24’ NMHWL
- Fee Ownership or Flowage Rights to 7.24’

Milford 1976

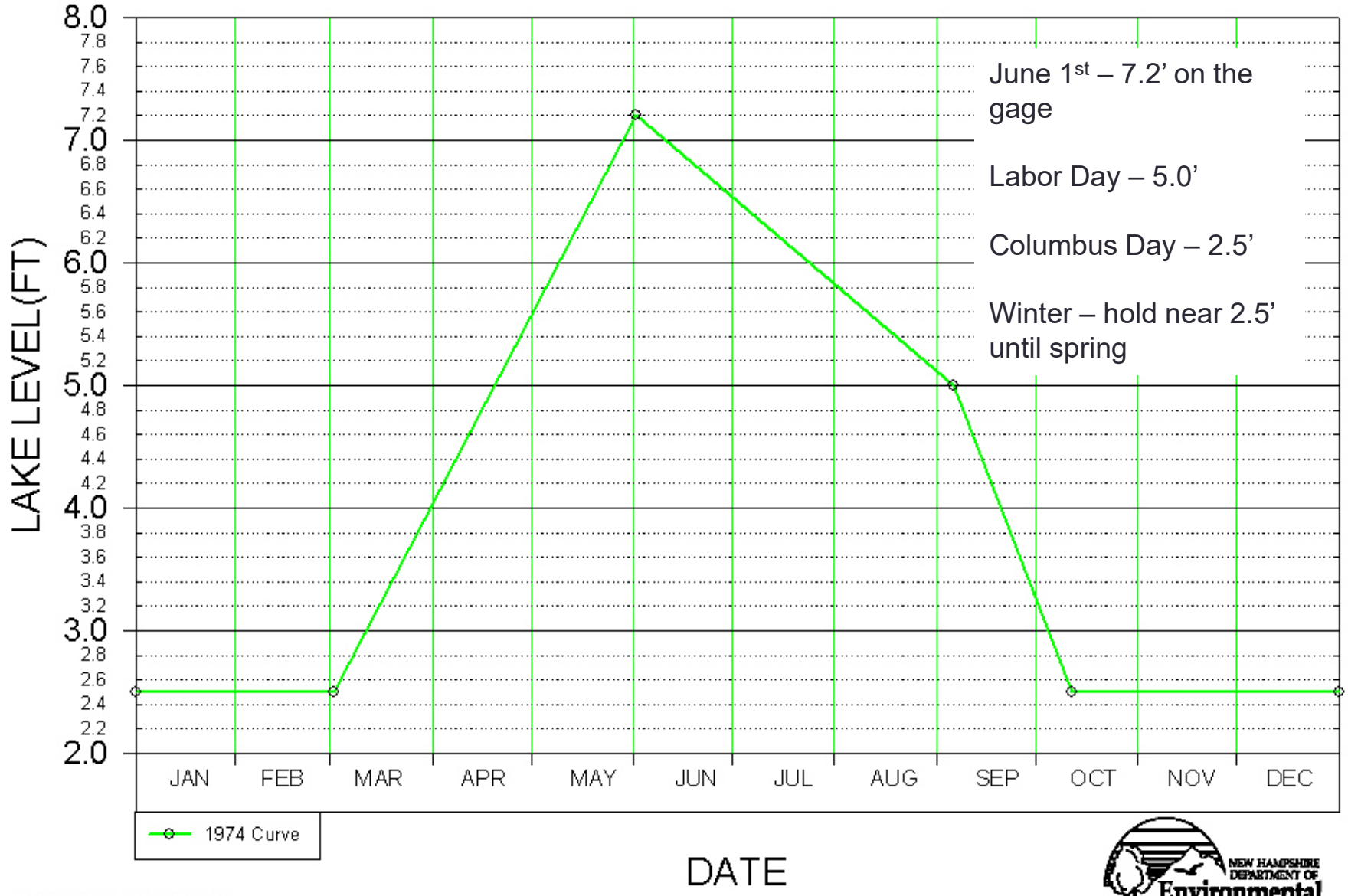

Height = 12 feet
Length = 120 feet
Three 6’ x 6’ gates
11 stoplog bays
DANGER DAM
DANGEROUS CURRENTS
STAY AWAY FROM DAM
11/22/2016

Water Management History

- In 1971 the State received a petition requesting a review of PSNH's water management practices. The petition indicated that water withdrawals from April through August caused the lake to drop up to 6 feet in some years.
- The petition sought to change management to conserve spring flows to allow for higher levels from April through September.
- The State conducted a public hearing in 1974.

ELEV. 0.0' ON GAGE = 581.88' NGVD ELEV.

NEWFOUND LAKE



June 1st – 7.2' on the gage

Labor Day – 5.0'

Columbus Day – 2.5'

Winter – hold near 2.5' until spring

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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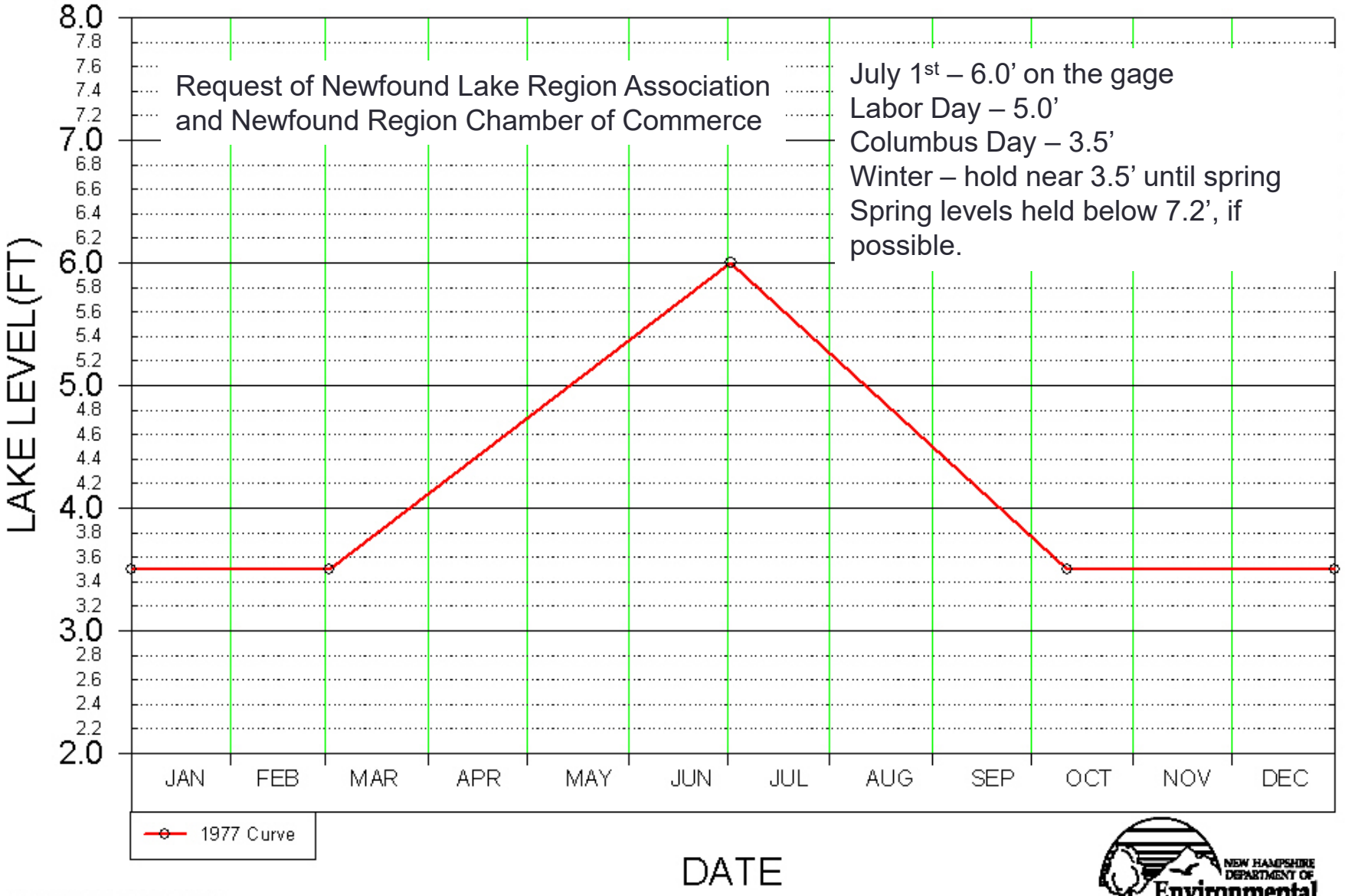

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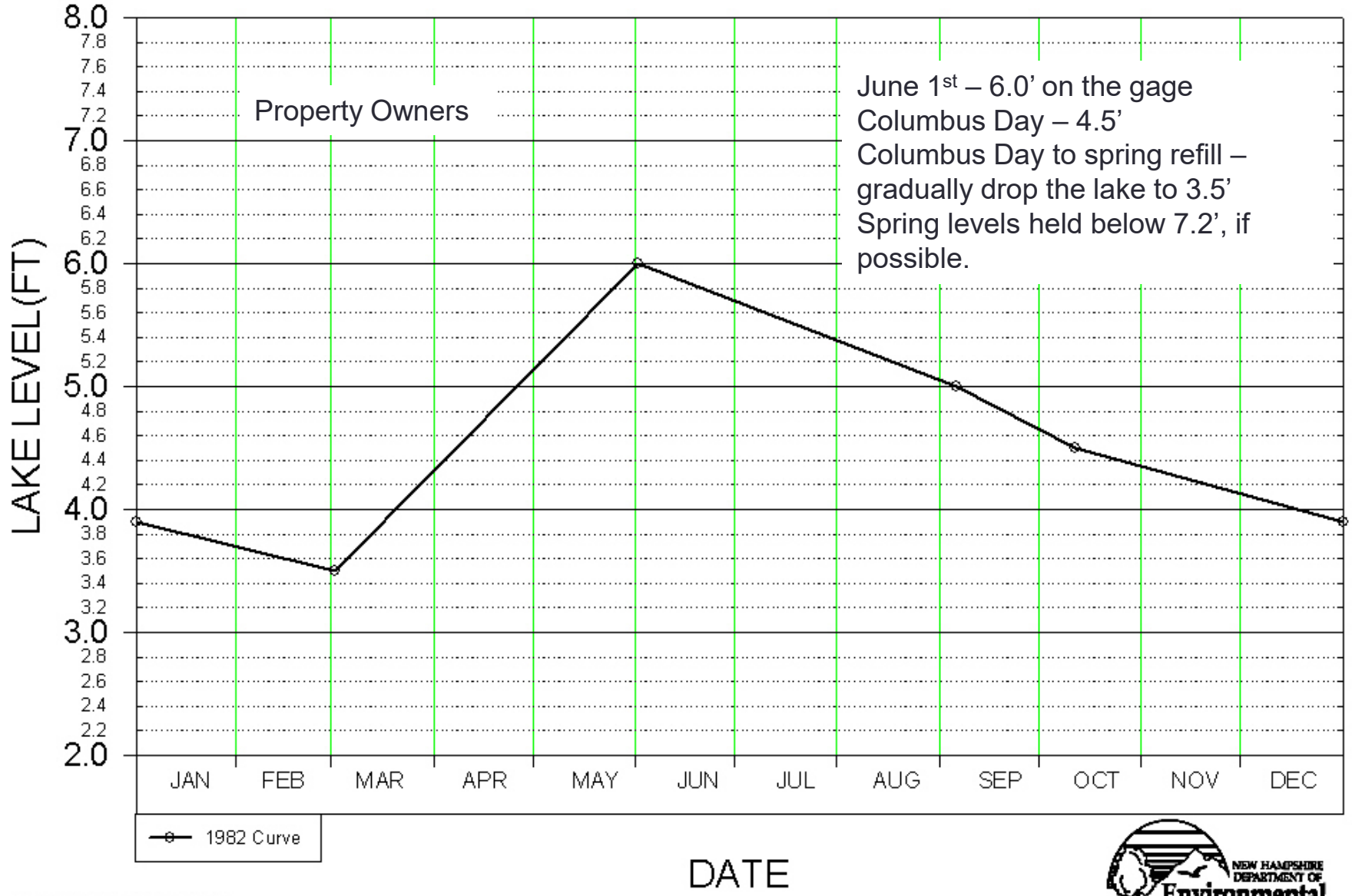
NEWFOUND LAKE



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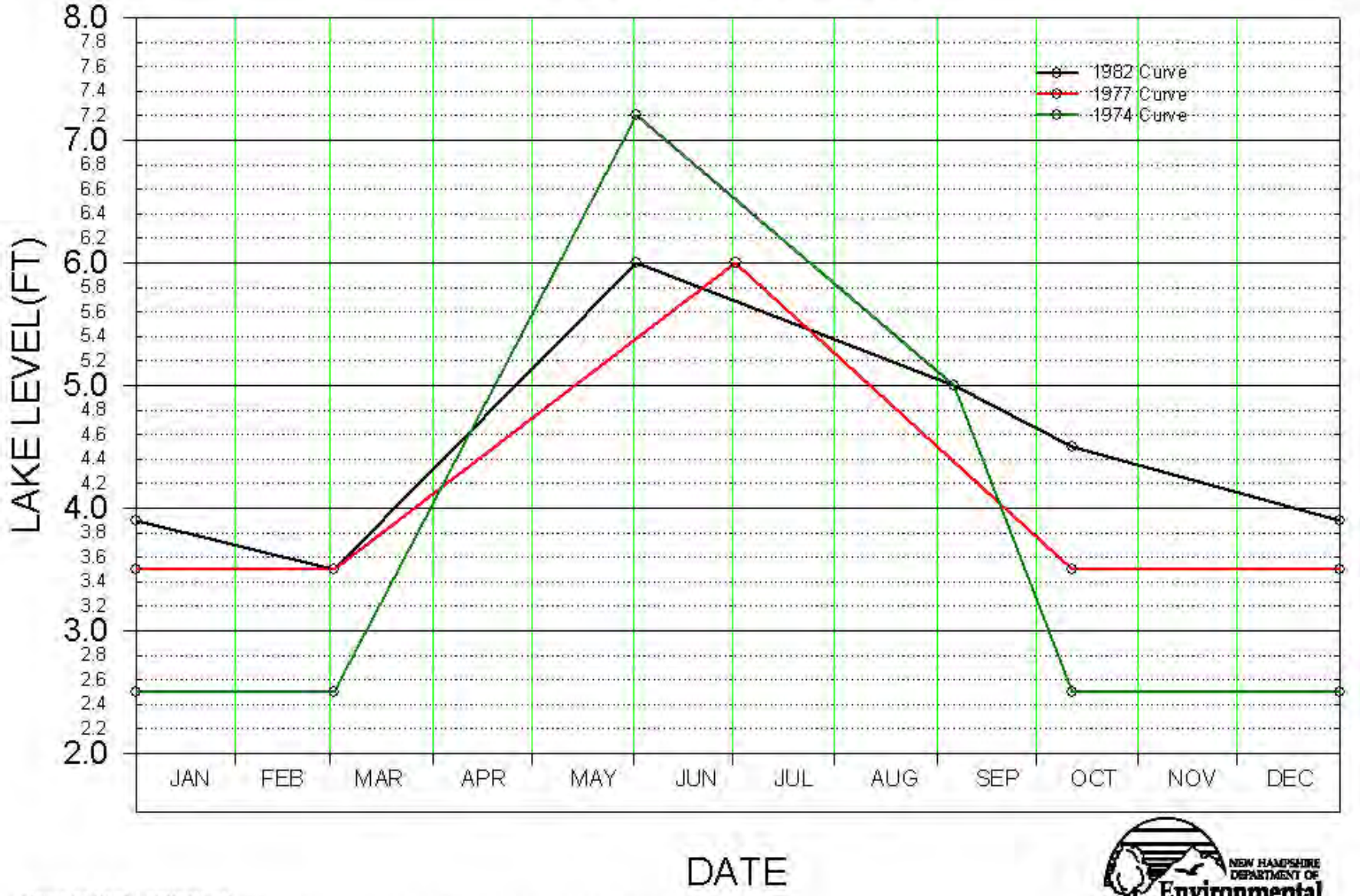
NEWFOUND LAKE



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MERCURY
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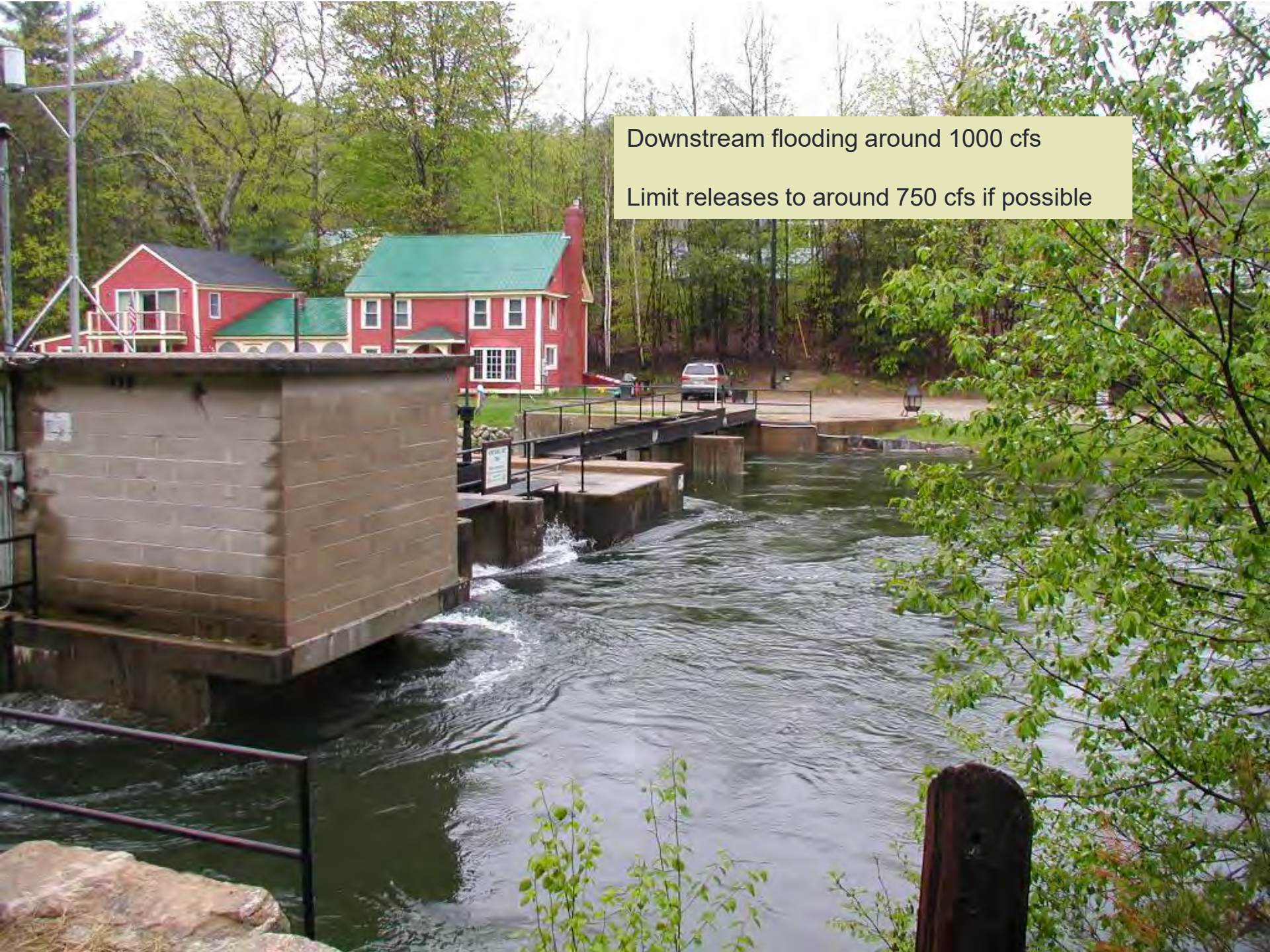
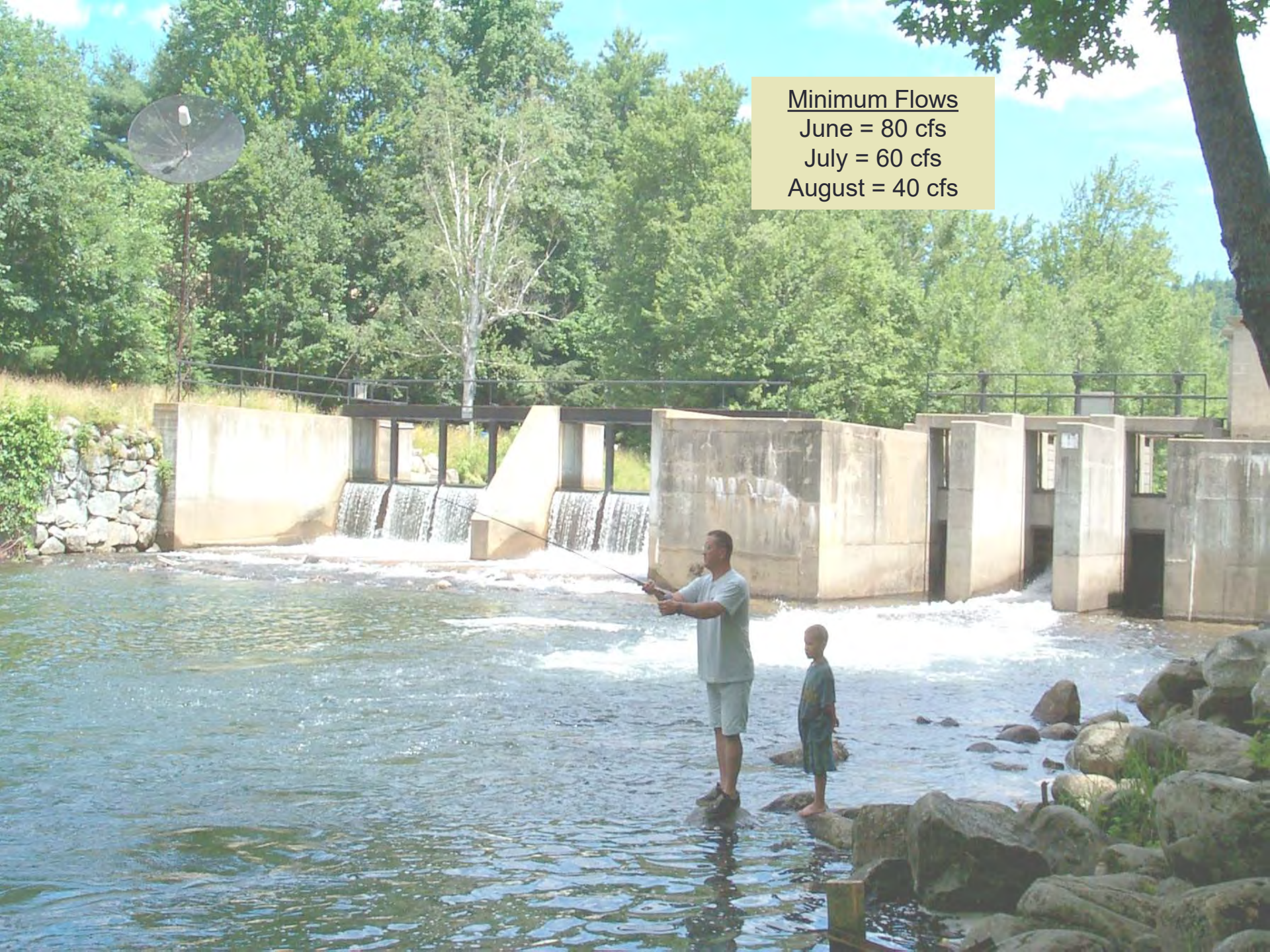

Downstream flooding around 1000 cfs
Limit releases to around 750 cfs if possible

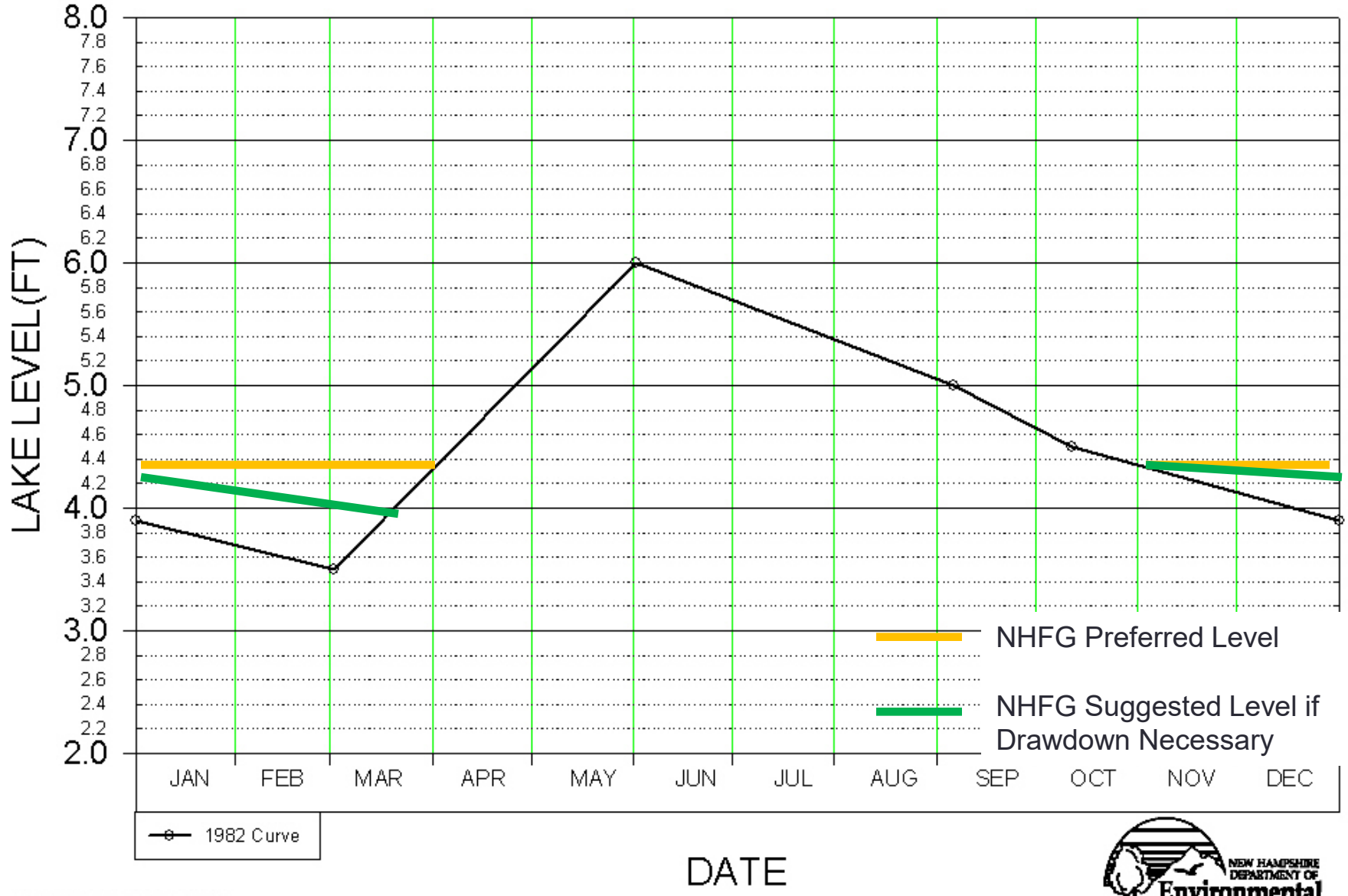

Minimum Flow = 60 cfs
Optimum Flow = 180-220 cfs
Maxim Flow =
05 . 11 . 2017


Minimum Flows
June = 80 cfs
July = 60 cfs
August = 40 cfs


Cabela's

ELEV. 0.0' ON GAGE = 581.88' NGVD ELEV.

NEWFOUND LAKE



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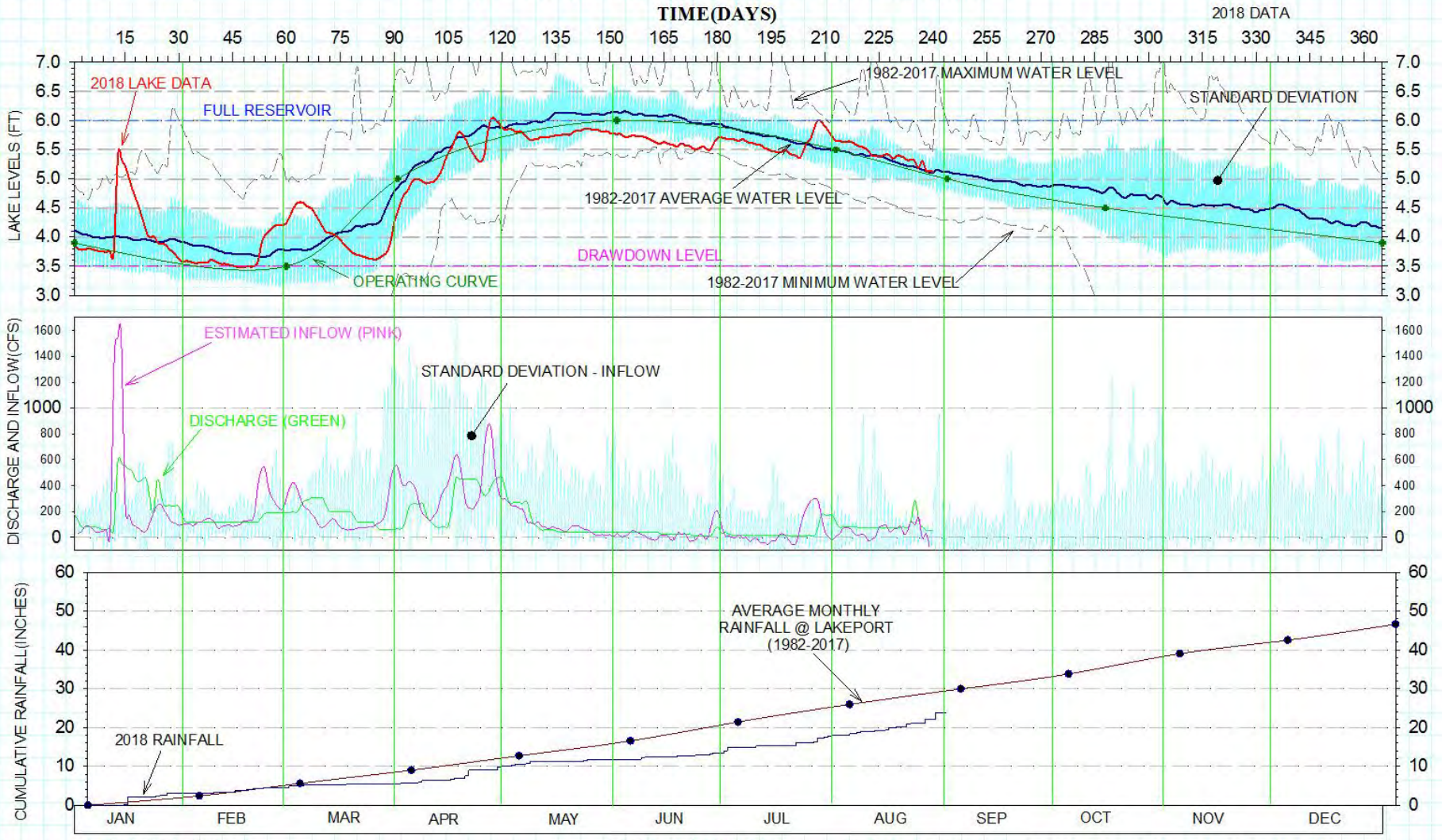
NEWFOUND LAKE LEVEL DATA



PROJECT DEVELOPMENT-JR
WINPRESENTATION.JNB

Updated 8/28/2018. LAKE LEVEL 5.12' FULL LAKE 6.00'.


08/01/2013

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- August 9, 2018
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  State Issues Cyanobacteria Lake Warning For Lake Wicwas In Meredith, New Hampshire
- August 9, 2018
  State REMOVES Cyanobacteria Warning For Weirs Channel In Laconia, NH
- August 8, 2018
  State REMOVES Cyanobacteria Lake Warning And Beach Advisory For Greenwood Pond In Kingston, NH

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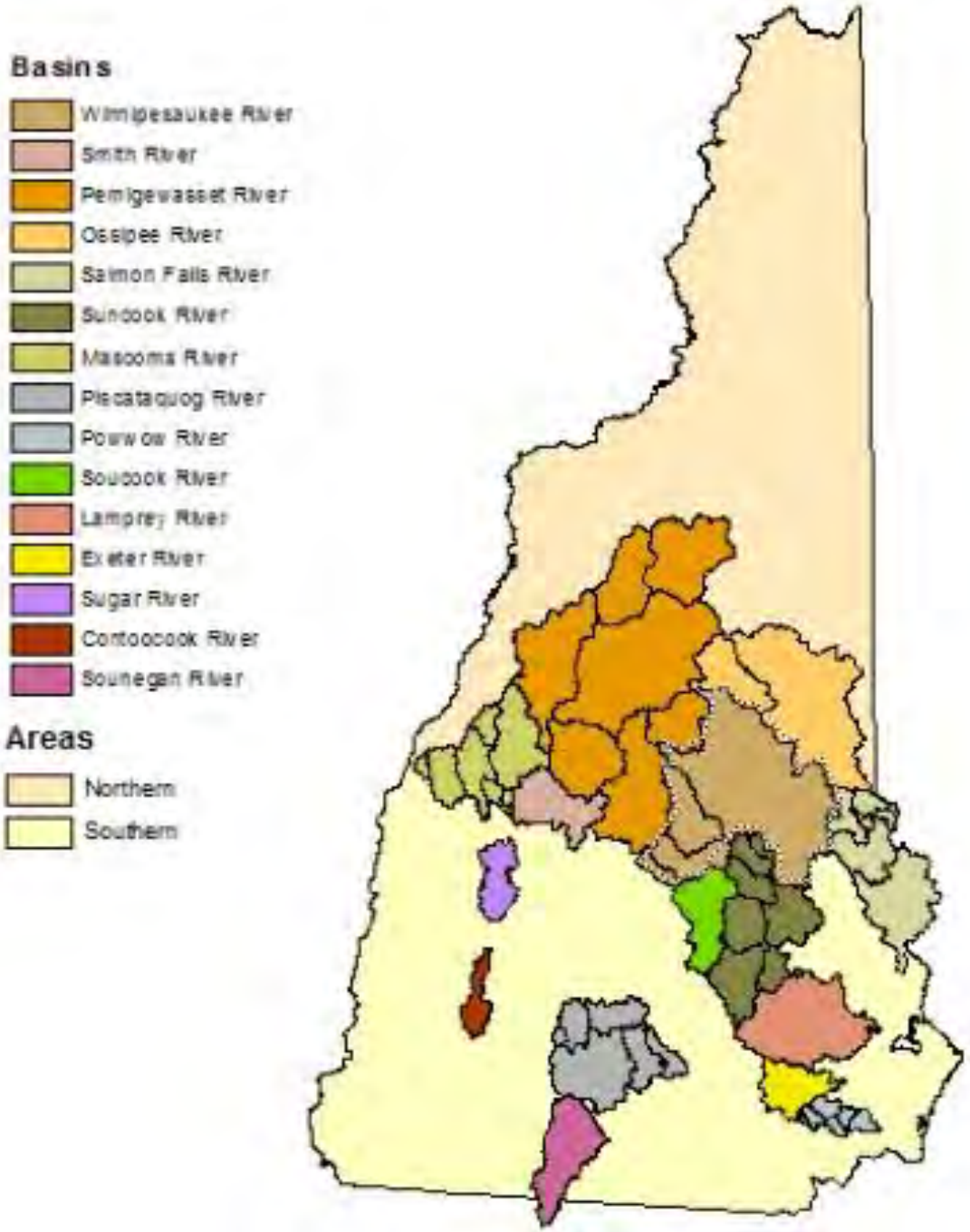
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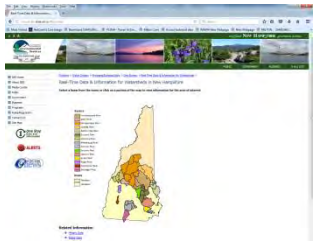

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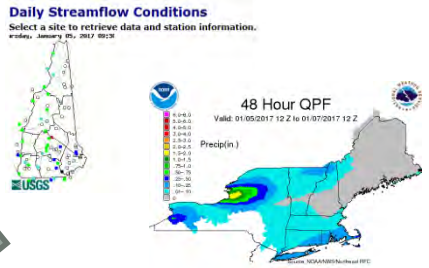
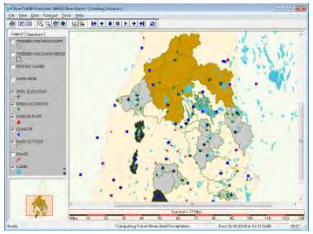
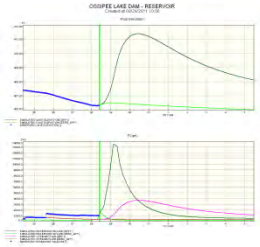
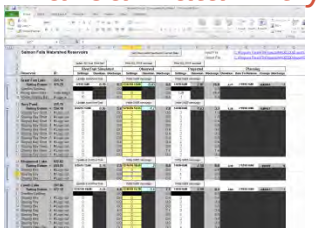




Flood Monitor Plots



Manual Data Entry



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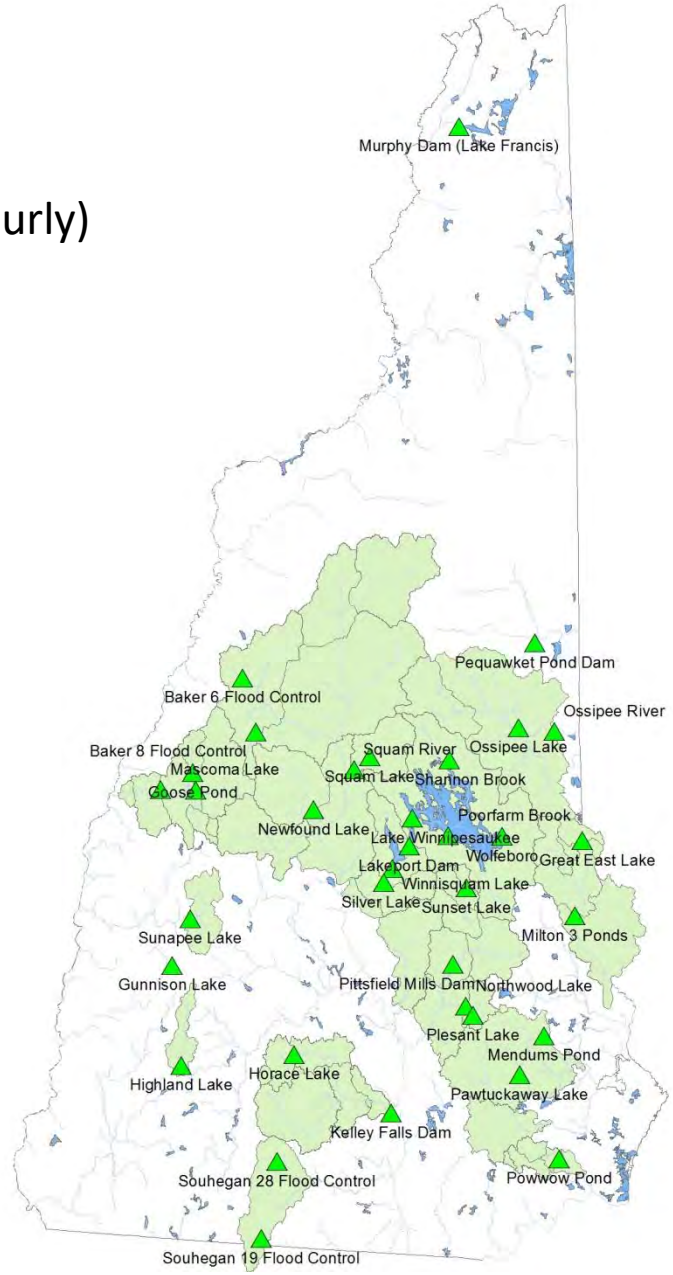

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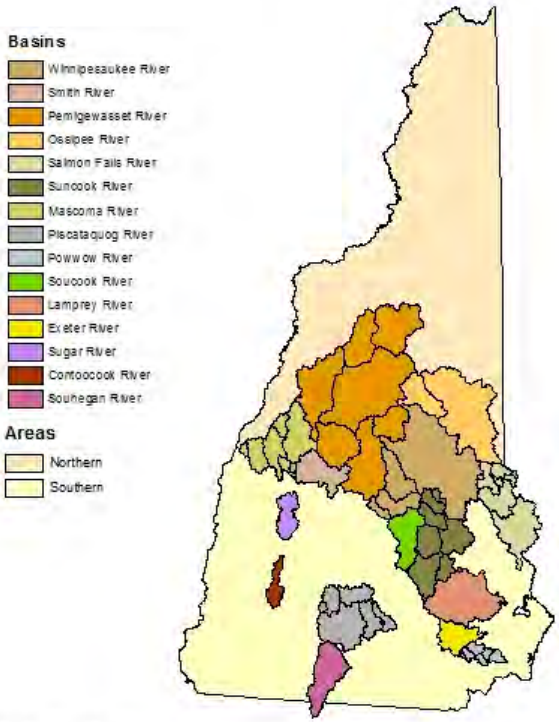

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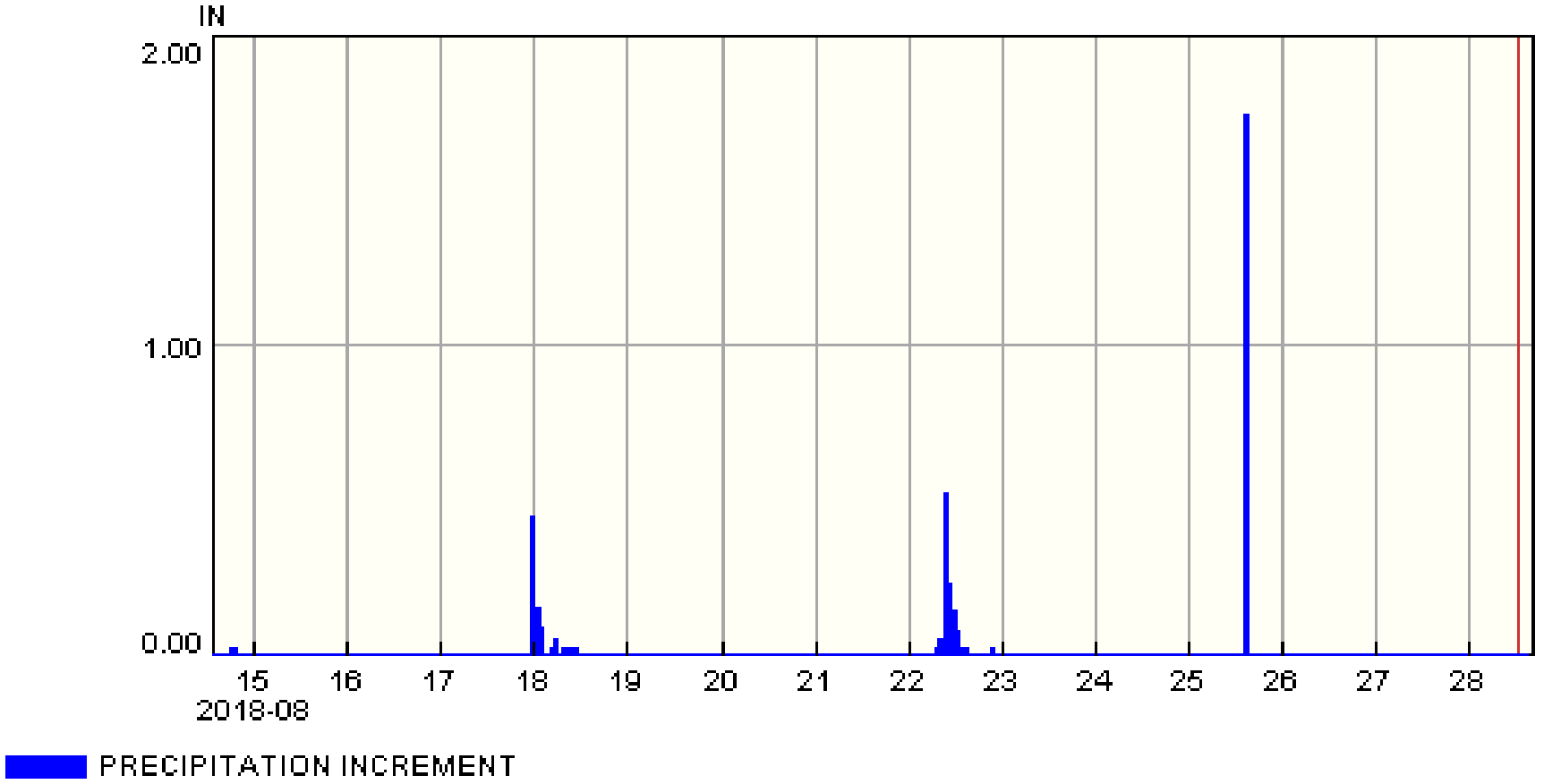
NEWFOUND LAKE DAM HOURLY PRECIPITATION [IN]

Created at 08/28/2018 13:00



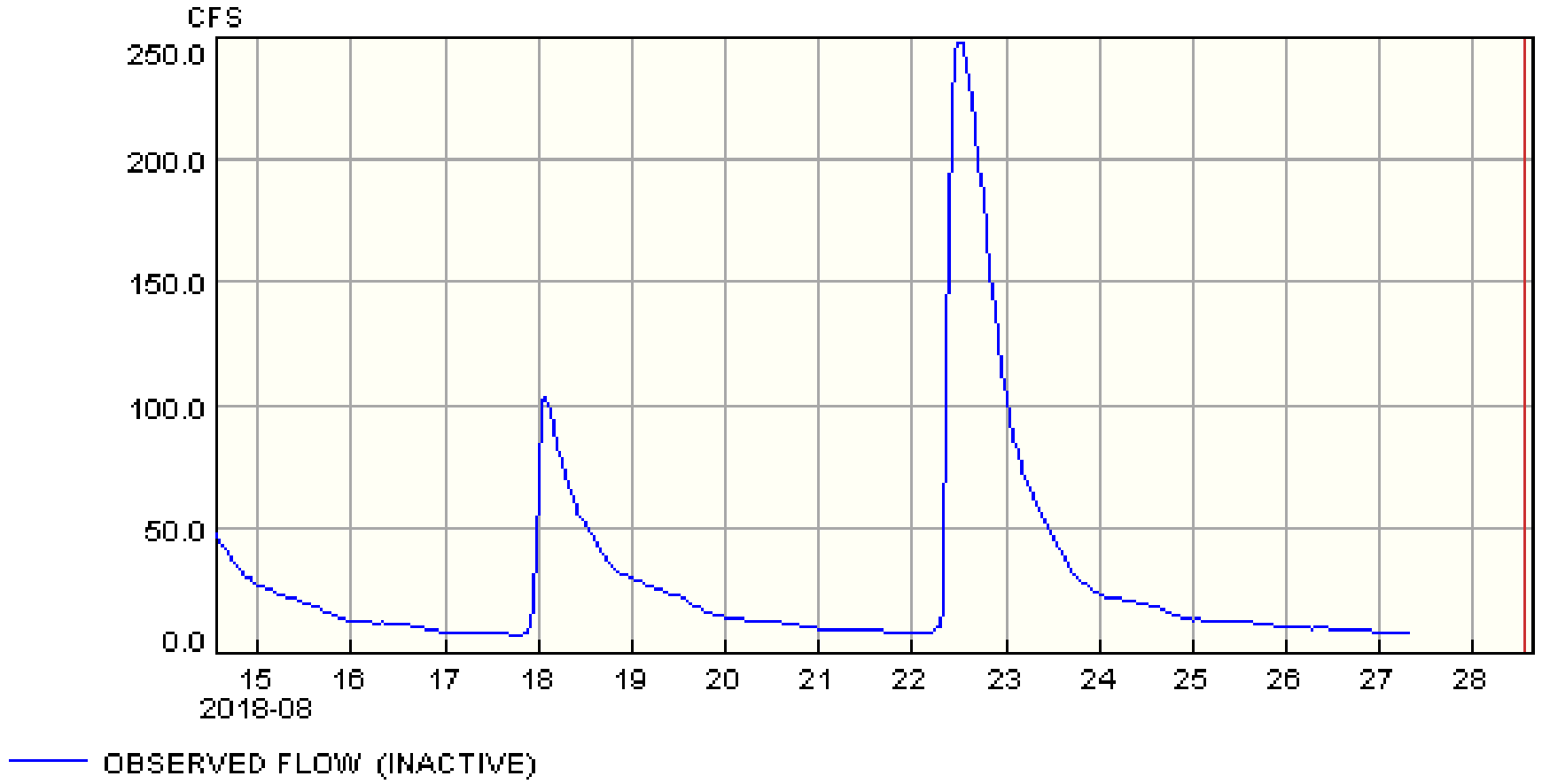
Pemigewasset River and Ossipee Lake Watersheds

Click on a Station to see Current Observations and Operations

Current Watershed Operations Information

COCKERMOUTH RIVER @ GROTON FLOW [CFS]

Created at 08/28/2018 13:00



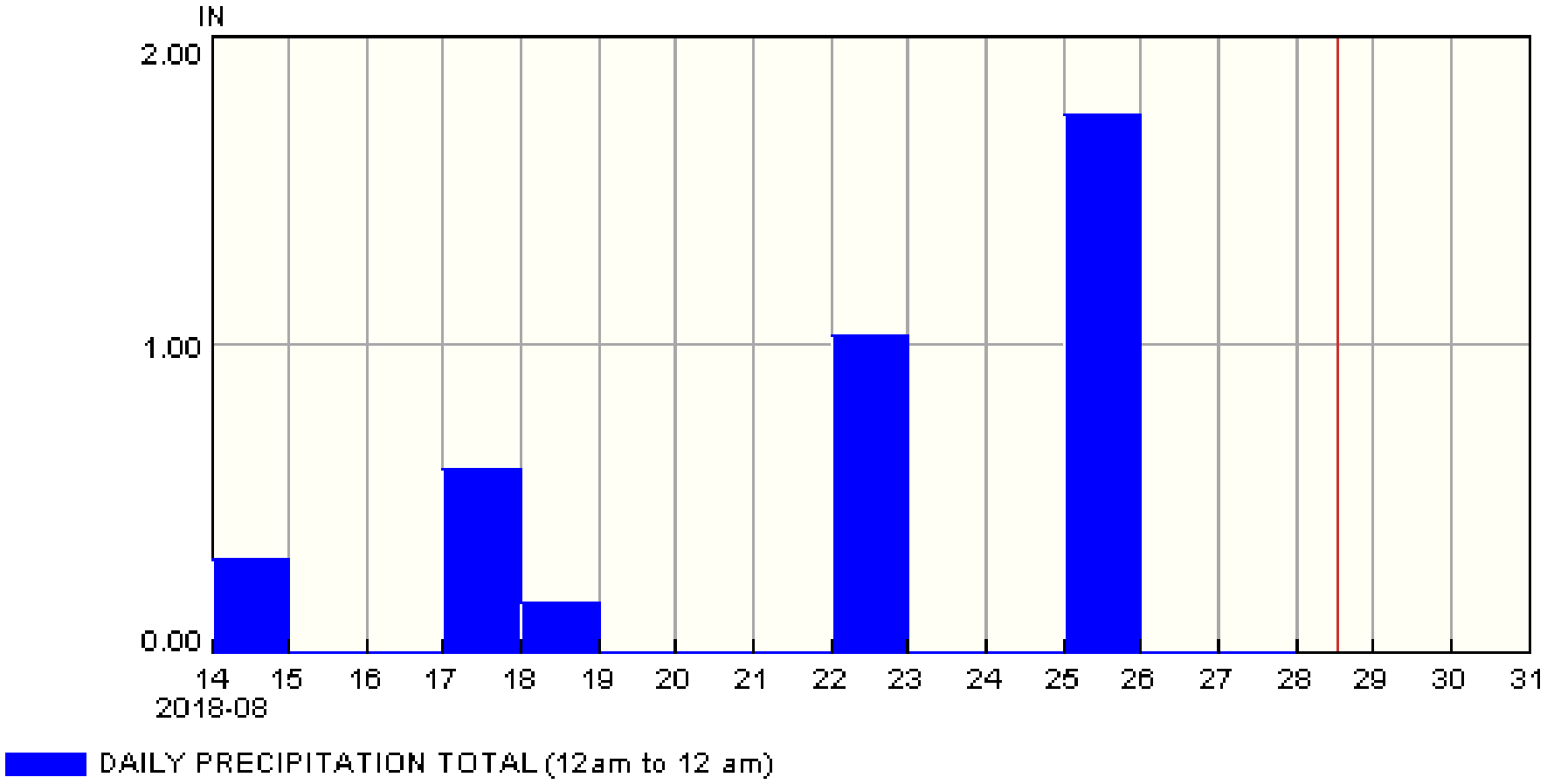
Pemigewasset River and Ossipee Lake Watersheds

Click on a Station to see Current Observations and Operations

Current Watershed Operations Information

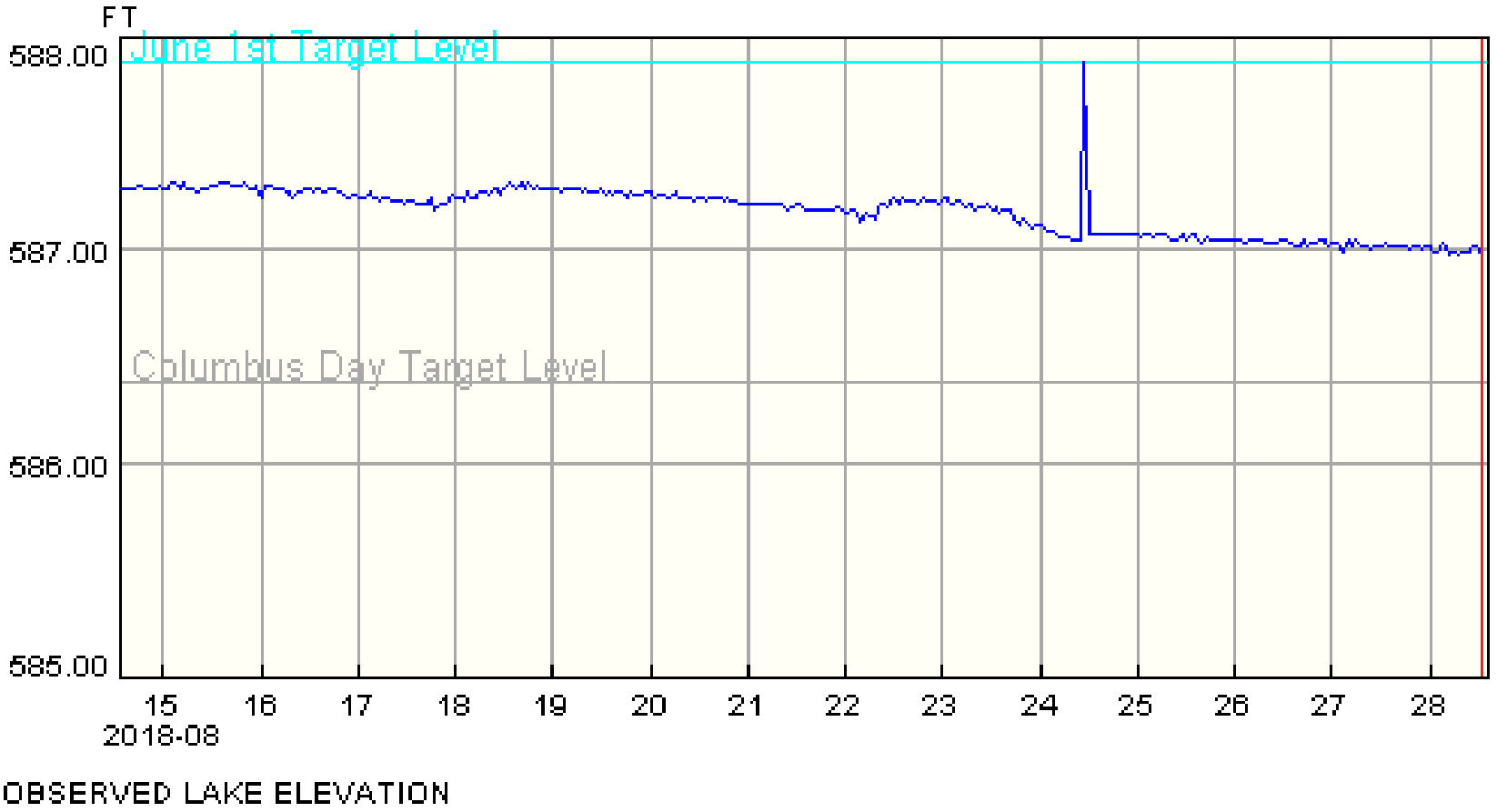
NEWFOUND LAKE DAM DAILY PRECIPITATION [IN]

Created at 08/28/2018 13:00



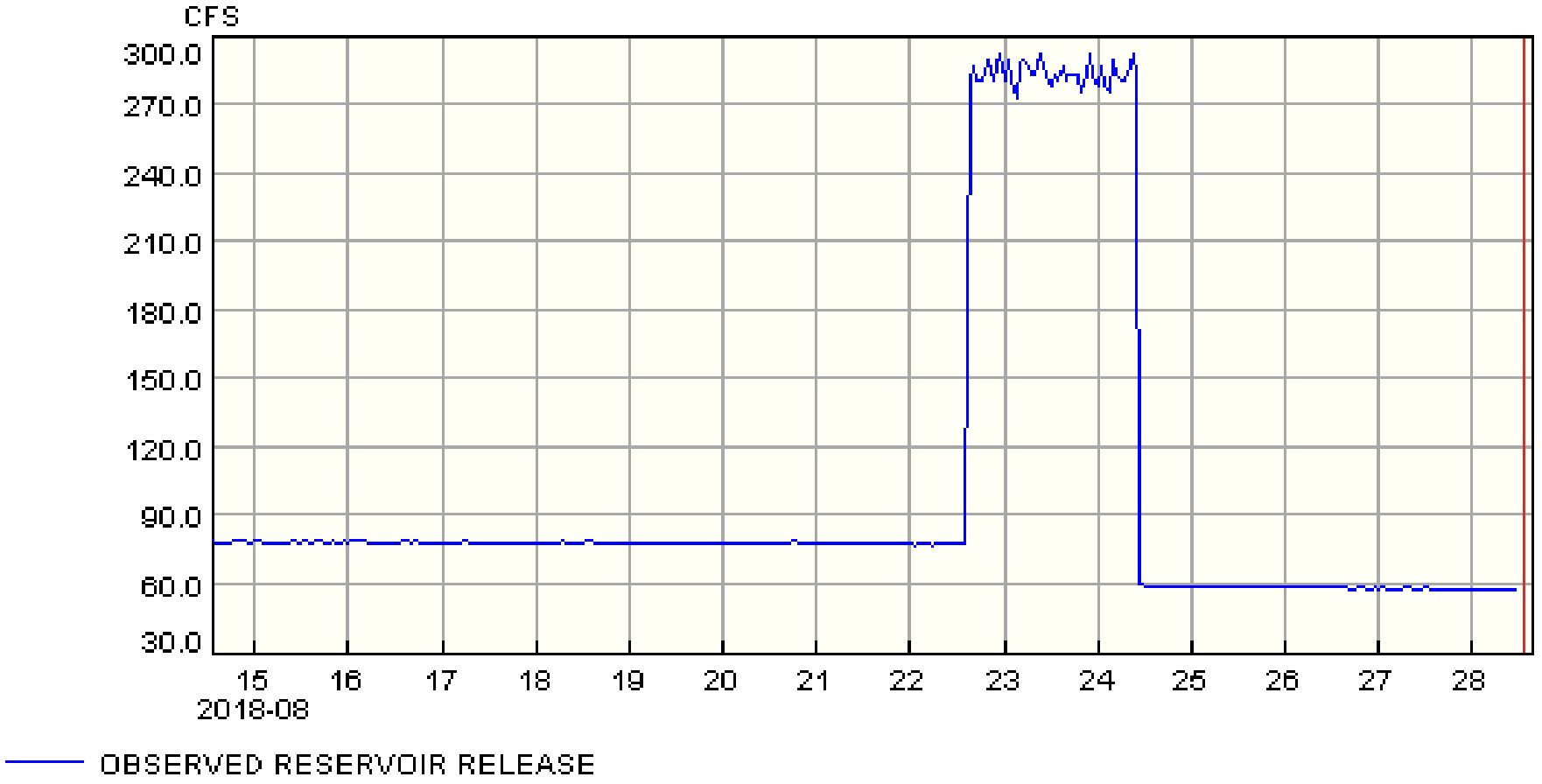
NEWFOUND LAKE ELEVATION [FT]

Created at 08/28/2018 13:00



NEWFOUND LAKE DAM FLOW [CFS]

Created at 08/28/2018 13:00



Data Graphs Operations Information Disclaimer Information

This station is located at the Newfound Lake Dam, which is located at the southerly end of the lake in Bristol. The following parameters are currently being measured at this station:

Newfound Lake Stage (Lake Elevation)*
Newfound River Stage / Flow
Precipitation
Air Temperature

*A gage reading of 6.0' corresponds to an elevation of 587.88'.

Spring Refill
Lake is filled between mid May and early June to a level of approximately 6.0' on the staff gage located just upstream of the bridge that crosses the outlet brook at the south end of the lake. It is not unusual to see spring lake levels significantly higher than 6.0'.

Summer Operations
Lake level is managed by bringing it up to full or 6.0' on the gage, then it is allowed to gradually lower over the course of the summer in order to reach a target gage reading of 4.5' on Columbus Day.

Seasonal Fall Drawdown
After Columbus Day the lake is slowly lowered to a target drawdown of 3 feet below full pond to allow shorefront maintenance to occur and to prepare for spring runoff. The drawdown is accomplished by the operations of flood gates and the removal of stoplogs at the dam.

Note: Water levels generally fluctuate in response to precipitation, snowmelt, drought or other meteorological conditions. Target water levels are mantained by the adjustment of flows at the dam in response to these conditions.

Data Graphs Operations Information Disclaimer Information

Current Watershed Operations Information

List of Specific Station Operations

The information on this page is intended provide users with the most current operations information for Newfound, Squam and Ossipee lakes. For specific information about operations and the current water levels and discharges at these locations, return to the map interface and select the appropriate link.

Tuesday, August 28th, 4 AM readings

Newfound Lake

The level of Newfound Lake is 5.11. Discharge from the dam is 58 cfs.

Squam Lake

The level of Squam Lake is 11.64. Discharge is 60 cfs today.

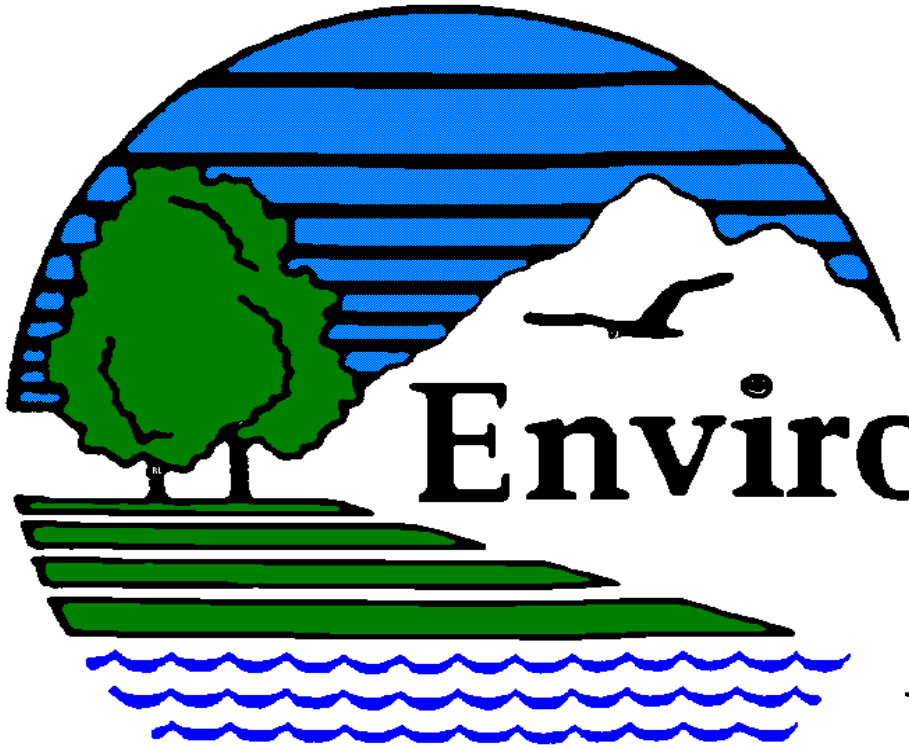
Ossipee Lake

The lake level at Ossipee Lake is 407.43. The release rate is 343 cfs.

This message will be updated as necessary when operational changes are planned or implemented, otherwise the information should be considered representative of current conditions at each location. DES will update this web page if any adjustments to flows at any of the locations noted above are made.

Related Information

- Real-Time Data Home
- Historic Data
- Radar Data
- Useful Links
- Operations Info
- Snow Sampling



NEW HAMPSHIRE
DEPARTMENT OF

Environmental Services

Water Division

Dam Bureau

Ecosystem
MANAGEMENT CONSULTANTS
of New England

Ecosystem Management Consultants, LLC
c/o Rick Van de Poll, Ph.D.
30 No. Sandwich Rd.
Center Sandwich, NH 03227

September 4, 2018

To:

Jim Gallagher, Chief Engineer
NHDES Dam Bureau
PO Box 85 29 Hazen Drive
Concord, NH, 03301

From:

Rick Van de Poll, Ph.D.
Ecosystem Management Consultants

Re: Written Testimony relative to lake level management at Newfound Lake

Dear Jim;

On behalf of several landowners along the north shore of Newfound Lake, I would like to thank you and your staff for taking the time to come up to Bridgewater and listening to the concerns of the local citizenry. You succeeded in meeting the end of summer request for a hearing and were thereby able to hear direct feedback from a number of summer-only residents. Kent did an outstanding job in facilitating the meeting as did you in providing a succinct review of the past and current management history of the Newfound Lake dam. You were also extremely patient and thoughtful in your remarks in spite of the many heated comments directed your way!

I wanted to summarize the points I made in my oral testimony that evening so that you have a basis for establishing a proposed change in lake level management. As we discussed, I believe this will help provide a starting point for your planned outreach to local residents. As you well know, there are a number of stakeholders on the lake and not all of them agree with how the lake should be managed. Hopefully we can strike a balance in our proposal that will address the most pressing concerns of almost all of the people who testified, that is, beach erosion and the health of the Newfound Lake ecosystem.

I began my comments the other night by pointing out my observations over the last several years of the north shore of Newfound Lake. In particular, these observations have included an in-depth study for the Town of Hebron of the Cockermouth River delta area, Hebron Marsh, Hebron Town beach, and more recently, at 22 erosion sites that Doug McLane and I identified around the lake during a boat tour on June 21st . These observations are not in any particular

order, although what I presented orally reflects what I believe should be a priority list of issues to examine as we move forward with a shift in management actions:

1) **Loss of sandy beach and turf line** – this concern perhaps touched the greatest number of residents who came to the hearing, and reflected what I have observed for several years now in selected sites around the lake. Some of the worst beach erosion is taking place at Hebron Town beach, where trees have been washed away, turf banks have disappeared, and temporary rock jetties have been obliterated by inshore currents and wave action. Other sites include Camp Greenwood, Bristol Shores, Wellington State Park, and most notably, Cummings Town Beach in Bristol.
2) **Excessive siltation and deposition of organic material by the two major inflow rivers** – both the Cockermouth and the Fowler Rivers have increased the amount of load deposition at their mouths. This was particularly noticeable between 2012 and 2014 when channel depth at the Cockermouth was measured to be two to three feet shallower. This was accompanied by a significant aggradation of leaf litter and debris on the east bank of the delta. During the June 2018 site visit to the mouth of the Fowler, large rafts of coarse woody material was found just below the surface where pure sand had been visible for many years. According to local reports, the water in the delta is shallower than it has ever been in spite of the higher than average lake levels during that time period.
3) **Increase in aquatic bed growth** – this has been observed in several areas around the lake, but especially off of the Cockermouth River delta. In 2012, scattered floating – leaved and submergent plants such as *Potamogeton spp.* and *Sparganium fluitans* were observed. This past year, solid mats of *Juncus balticus*, *Pontederia cordata*, and *Nymphaea odorata* were seen in the same place. These mats were also supporting thick coats of *Mougeotia* and other species of filamentous green algae. Whereas each of these effects is not uncommon for a smaller water body undergoing natural eutrophication, this has not been, and some would say, *should not* be the case for a large oligotrophic lake like Newfound.
4) **Inshore currents have changed** – this has been one of the more difficult observations to pinpoint and quantify yet over a fairly short time period (i.e. 20 years or so), the deposition of sand has moved away from certain areas with a subsequent loss of beach replenishment. Whereas the beach erosion cited under #1 has been primarily documented from direct wave action, the shift in currents along the shore has ensured that this destabilized sand has moved away from its source location. Nowhere is this more evident than at Hebron Town Beach where several 'currents tests' have been done by local residents. Historic aerial photography has indicated a fairly stable deposition of sand by virtue of the normal sediment movement from the Cockermouth River. This has dramatically changed in the last decade. Cummings Beach has also suffered this effect with even more current velocity as evidenced by the four to five foot high erosion bank at the east end.
5) **The nutrient residence time appears to have shifted** – as you well know, one of the critical, indirect effects of a change in the hydrologic budget is the way in which water borne nutrients are transported, attenuated, and transformed by aquatic organisms. While much of this has to do with increased development around the lake, the way in which these water borne nutrients are moved through the system has likely been affected by lake level as well. Water clarity has gone down and levels of chlorophyll a have gone up across the years of testing. This has probably been a result of increased nutrients (especially TN and TP) levels in the water.

Because of the cascading effects of watershed slope or flashiness, increased spring and fall storm events, and an inability to draw down the lake fast enough to offset run-off, the following is being proposed as an *interim measure* to reverse or at the very least reduce the loss of shoreline integrity around Newfound Lake:

- **Drop the summer (June 1st) target by .5 feet to 5.5 feet on the gauge**
- **Gradually lower the lake level beginning on Labor Day and ending on Columbus day to 3.0 feet on the gauge**
- **Hold this level until March 30th, whereupon the level can be gradually increased until June 1st**
- **To the extent practicable, hold each level to at or below the target, not above**

Since this is being proposed as an interim measure to determine its suitability for achieving the desired results noted above, there are several other measures that I believe the Dam Bureau should do in conjunction with this shift in lake level management:

1) Establish grade stakes at critical locations to determine whether or not the desired effects are taking place
2) Revise and update the run-off model to focus on a five-year look-back of storm event data
3) Invest in GPS-based digital current monitors to track shifts in currents near beach areas
4) Invest in electronically-controlled stop-logs to facilitate a more rapid drawdown of lake levels after a significant storm event
5) Be proactive in monitoring storm events and begin drawdowns earlier in their sequence

Jim, I could, of course, flesh out the rationale behind each of the proposed changes in lake level management, but I believe I've made my case. I also believe that I speak for a large contingent of lake residents when I say that shoreline erosion and the subsequent loss of water clarity is the most critical, unifying concern among lakeshore owners. I would end by saying that we appreciate your willingness to "reopen the case" for Newfound, especially when it was a similar initiative over 35 years ago that got us into this mess to begin with! Thanks for your time and attention in this matter. I'd be happy to answer any questions you may have about the above testimony.

Respectfully submitted;

Rick Van de Poll

NEWFOUND LAKE EROSION CONCERNS

Dr. Rick Van de Poll

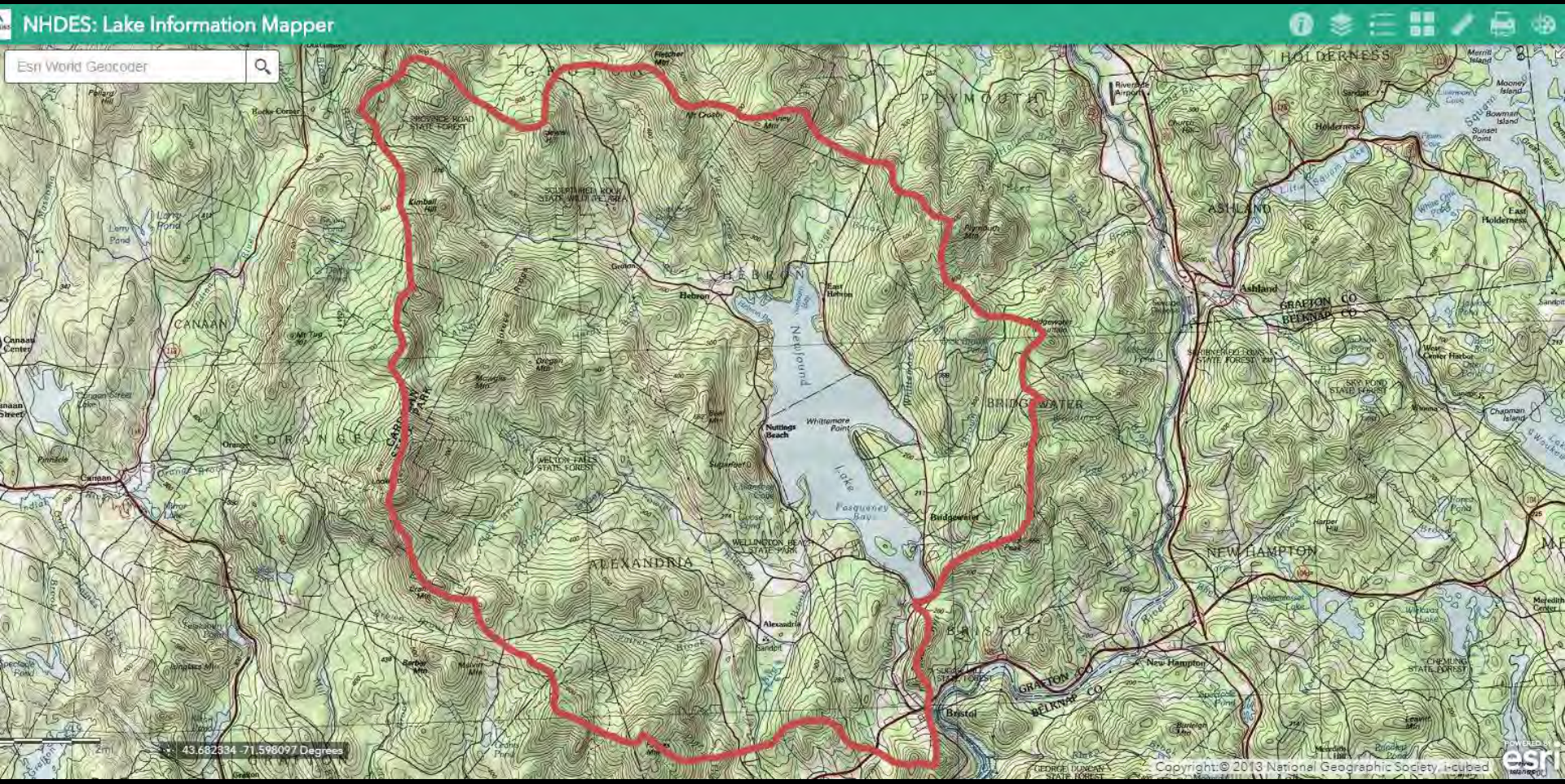
Ecosystem Management Consultants

Sandwich, N.H.

LAKES REGION - NH

NEWFOUND LAKE WATERSHED

HUC ID: 0107000106 (Newfound River)
Size: 63,150 ac. Above Pemigewasset River
61,250 ac. Above outlet of lake



OVERVIEW – NEWFOUND LAKE

THE LAKE

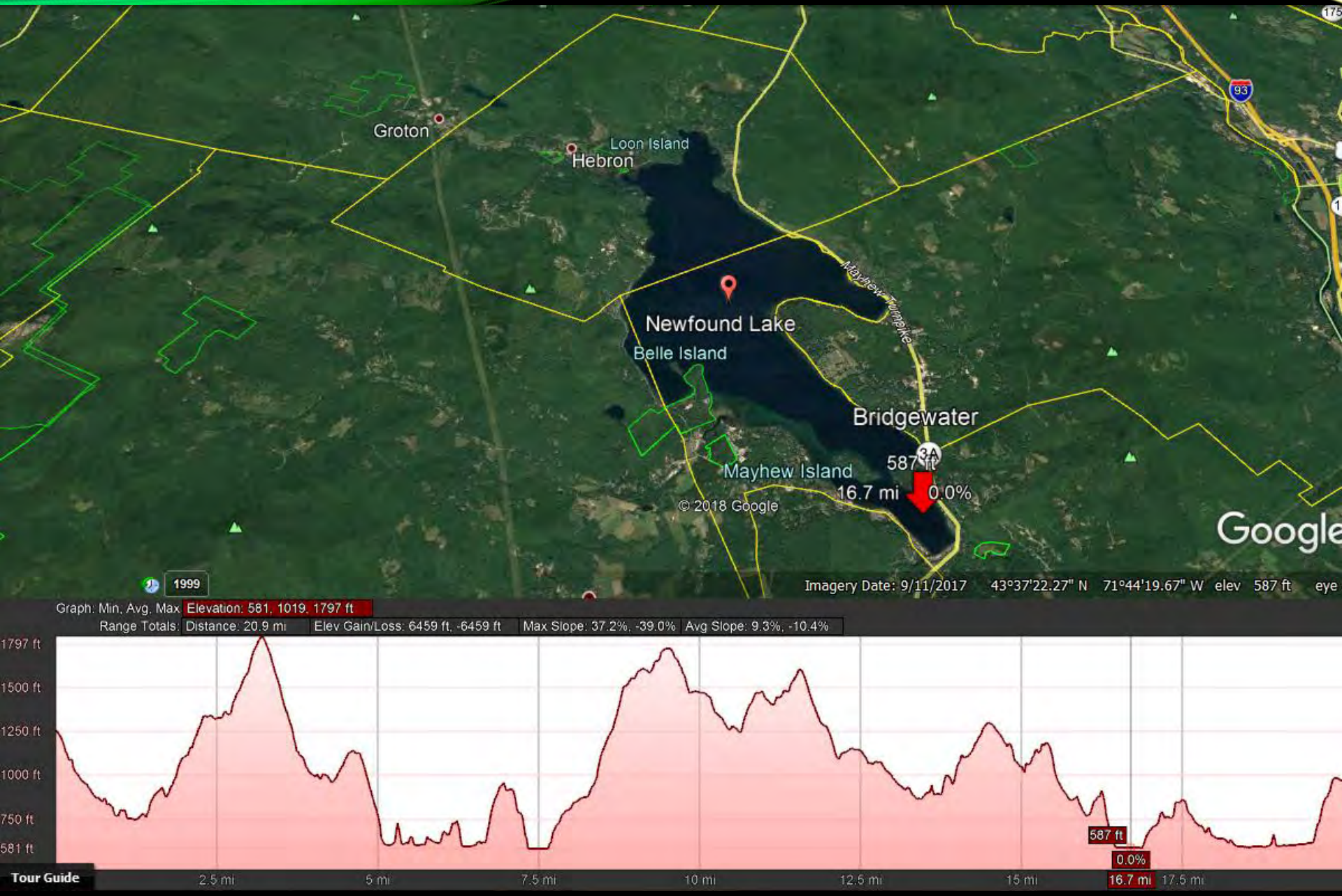
- 4106 acres
- 5th largest in state
- 182 ft deep
- One of ten clearest lakes in NH
- High quality oligotrophic, dimictic lake
- Low N,P,Chlorophyll

THE WATERSHED

- 63,150-acre watershed
- 589 ft lake elevation
- Highest point in watershed: Mt Cardigan (3155 ft)
- 250 miles of perennial stream entering Newfound Lake
- (2) 4th order inflow rivers

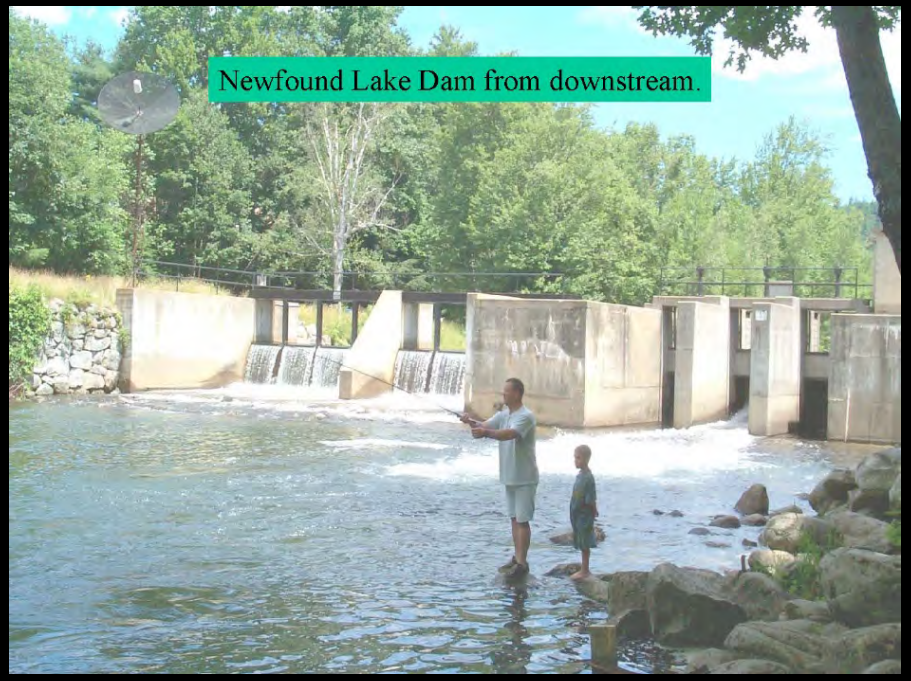
THE RESIDENTS

- 9 Towns, > 4800 residents in watershed
- > 25,000 visitors each year
- > 1820 shorefront residents
- > $12.5 mill. in annual revenue
- > 115 businesses in Newfound Region

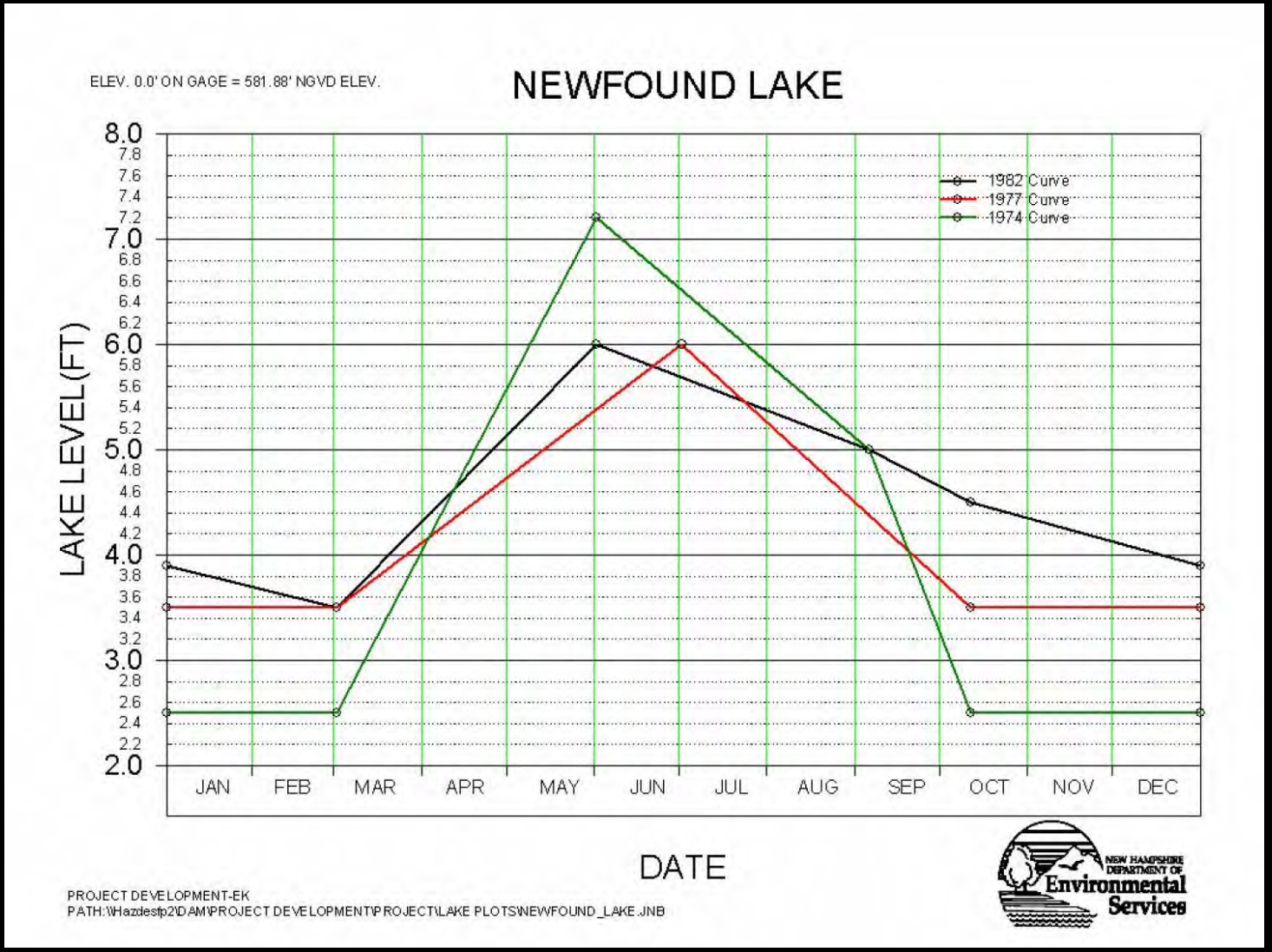

Groton
Loon Island
Hebron
Newfound Lake
Belle Island
Bridgewater
Mayhew Island
587 ft
16.7 mi
0.0%
© 2018 Google
Google
1999
Imagery Date: 9/11/2017 43°37'22.27" N 71°44'19.67" W elev 587 ft eye
Graph: Min, Avg, Max Elevation: 581, 1019, 1797 ft
Range Totals: Distance: 20.9 mi Elev Gain/Loss: 6459 ft, -6459 ft Max Slope: 37.2%, -39.0% Avg Slope: 9.3%, -10.4%
1797 ft
1500 ft
1250 ft
1000 ft
750 ft
581 ft
587 ft
0.0%
Tour Guide
2.5 mi
5 mi
7.5 mi
10 mi
12.5 mi
15 mi
16.7 mi
17.5 mi

LAKE LEVELS

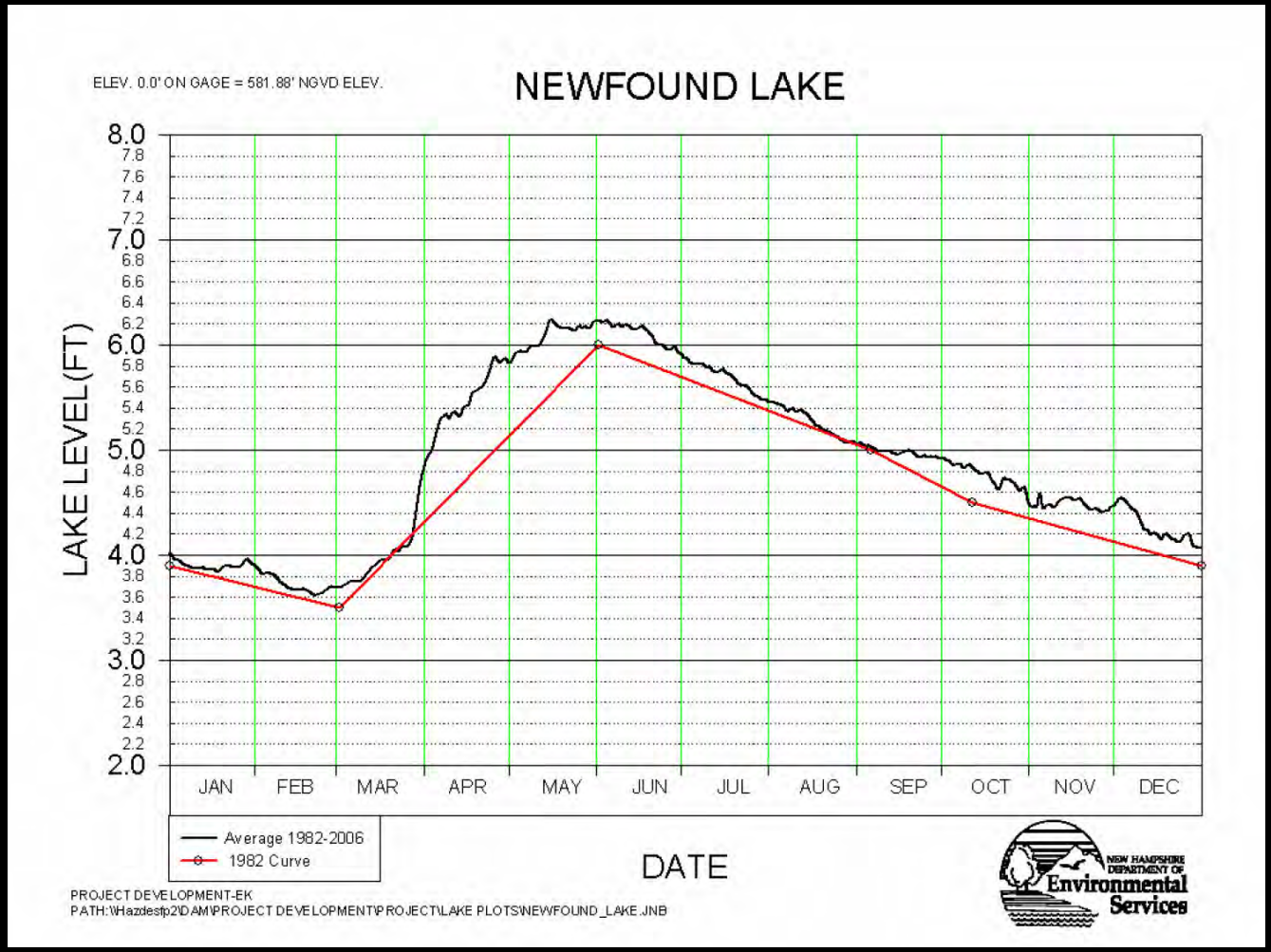
- **589.12** – Reference Line
  - (7.24 ft on gage)
- **587.88** – current June 1st target (6.0 ft on gage)
- **586.38** – current Columbus Day target
  - (4.5 ft on gage)
- **585.38** – lowest level target before spring
  - (3.5 ft on gage)
- **584.12** – Natural MHW
  - (2.24 ft on gage)



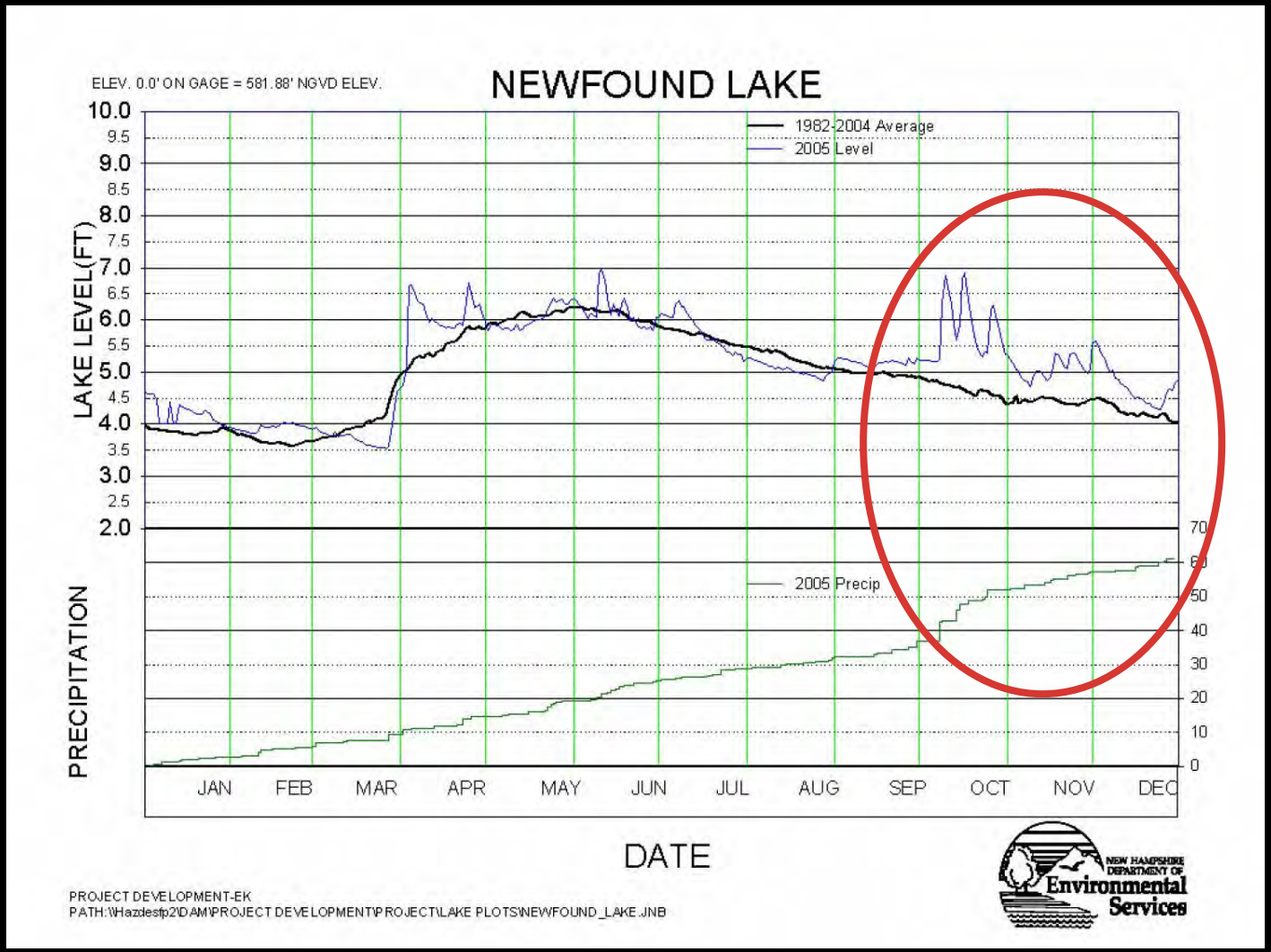
CHANGES SINCE 1971



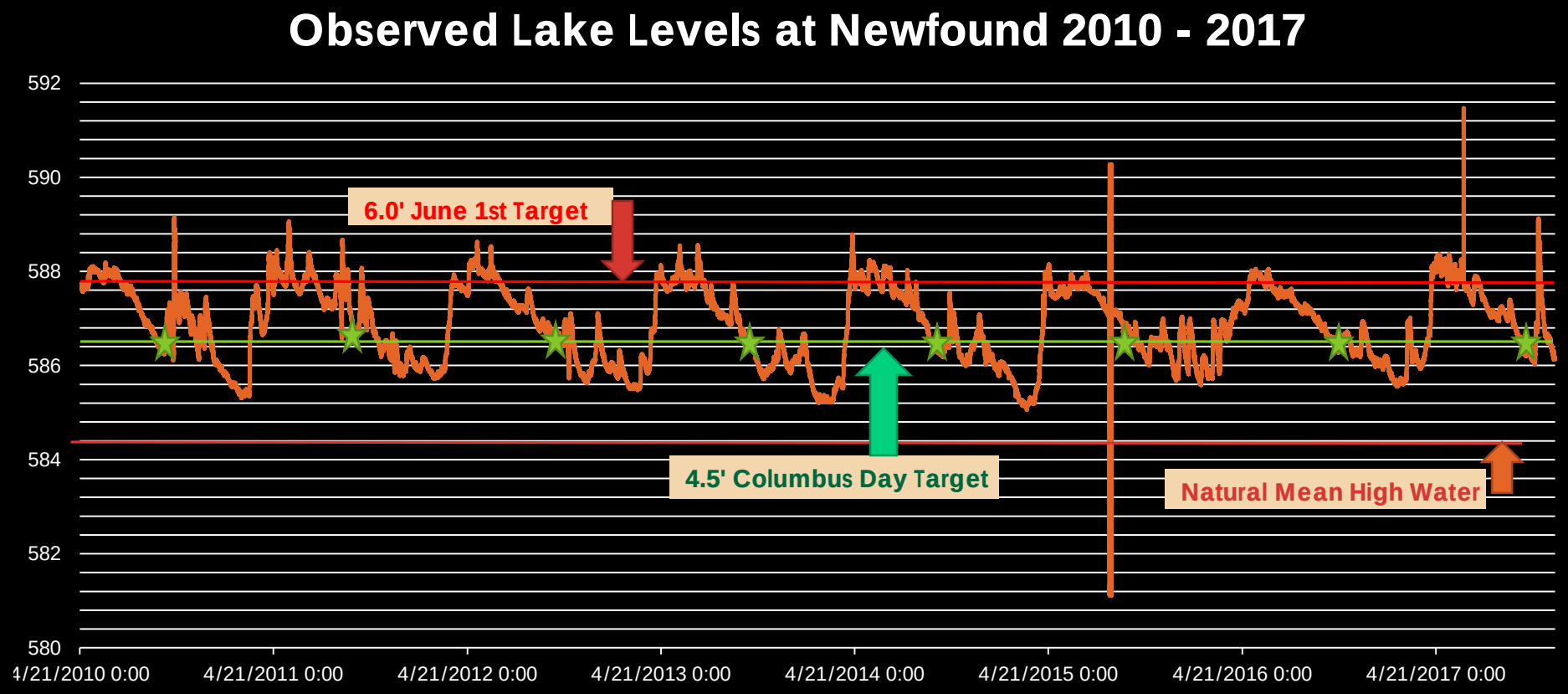
MEAN LAKE LEVELS – 1982 - 2006



2005 "ANOMALY"

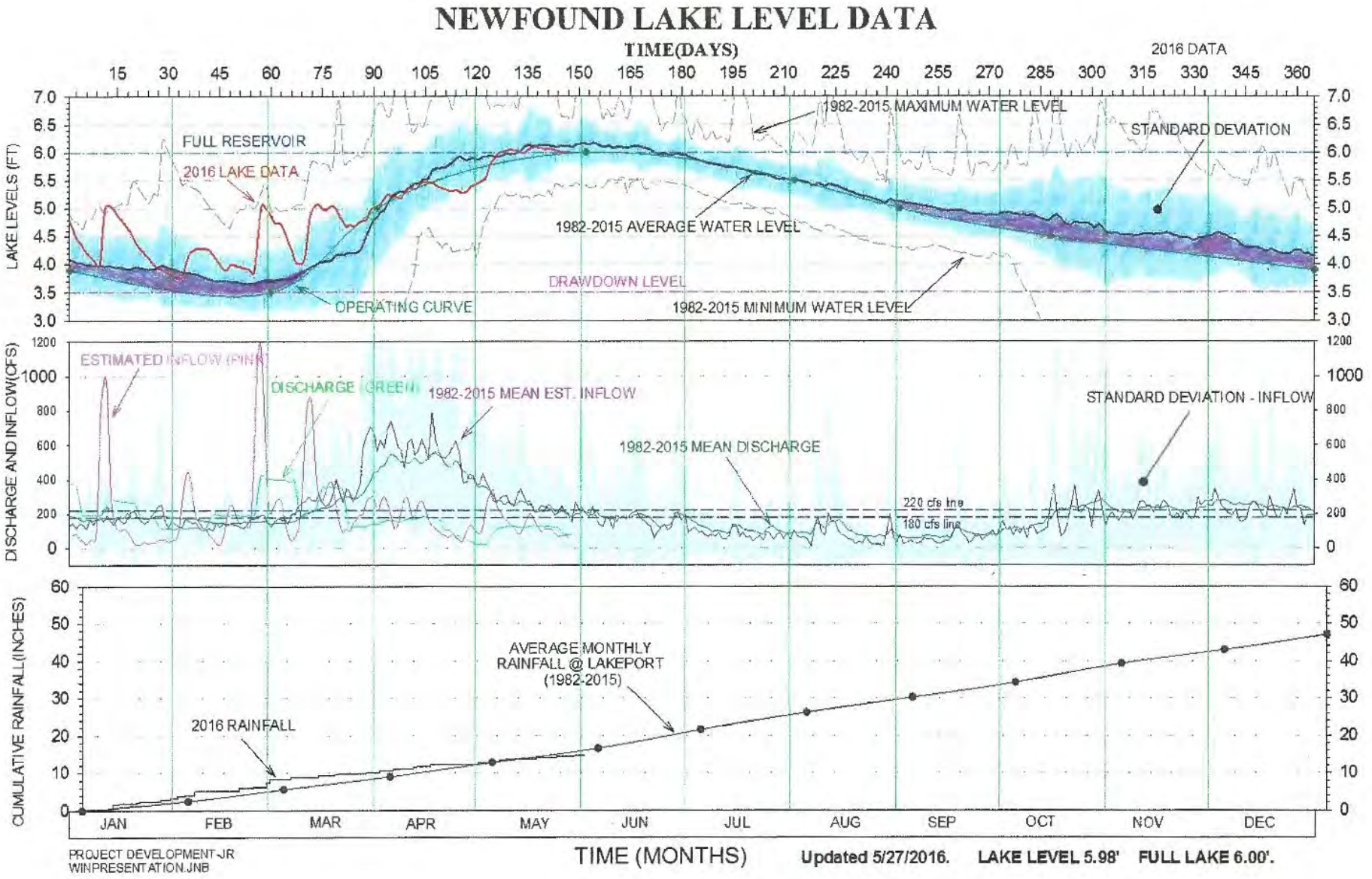


MEAN LAKE LEVELS – 2010 - 2017



Note: ★= Columbus Day

MEAN LAKE LEVELS – 2016



NEWFOUND LAKE – EROSION CONCERNS

- INTERESTS AFFECTED BY MANAGEMENT:

- Recreation
- Property Use and Value
- Fisheries
- Wildlife
- Aquatic Plants
- Downstream Water Users (hydro and aquaculture)
- Business and Tourism

HEBRON TOWN BEACH

2017

HEBRON TOWN BEACH

HEBRON TOWN BEACH

GREY ROCKS BEACH

GREY ROCKS BEACH

2017

2017

BRISTOL SHORES

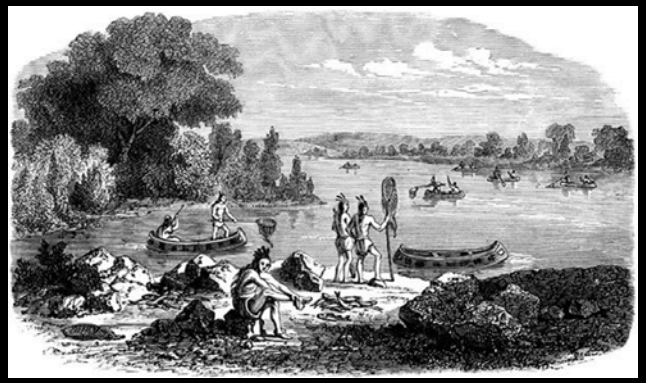
CAMP GREENWOOD

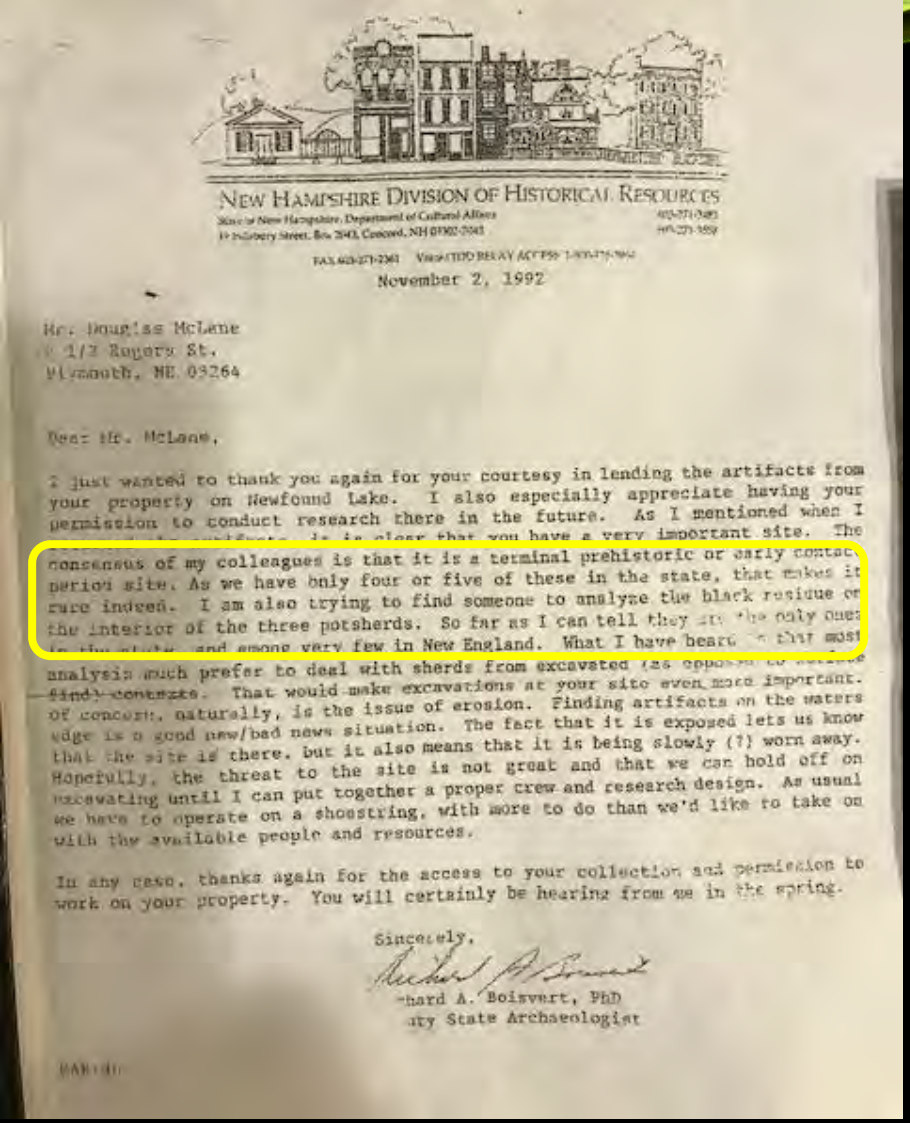
ADDITIONAL CONCERNS

EFFECTS ON COCKERMOUTH DELTA

- Aquatic Bed Expansion
  - Increased algal blooms
  - Loss of water clarity
  - Reduced swimming area
- Deposition of organic material
  - Loss of water flow through
  - Reduced navigation
  - Change in food chain base

ADDITIONAL CONCERNS





NEW HAMPSHIRE DIVISION OF HISTORICAL RESOURCES

November 2, 1992

Mr. Douglas McLane
[illegible] 1/2 Rogers St.
Plymouth, NH 03264

Dear Mr. McLane,

I just wanted to thank you again for your courtesy in lending the artifacts from your property on Newfound Lake. I also especially appreciate having your permission to conduct research there in the future. As I mentioned when I [illegible] the artifacts, it is clear that you have a very important site. The consensus of my colleagues is that it is a terminal prehistoric or early contact period site. As we have only four or five of these in the state, that makes it rare indeed. I am also trying to find someone to analyze the black residue on the interior of the three potsherds. So far as I can tell they are the only ones in the state, and among very few in New England. What I have heard is that most analysis much prefer to deal with sherds from excavated (as opposed to surface) find contexts. That would make excavations at your site even more important. Of concern, naturally, is the issue of erosion. Finding artifacts on the waters edge is a good new/bad news situation. The fact that it is exposed lets us know that the site is there, but it also means that it is being slowly (?) worn away. Hopefully, the threat to the site is not great and that we can hold off on excavating until I can put together a proper crew and research design. As usual we have to operate on a shoestring, with more to do than we'd like to take on with the available people and resources.

In any case, thanks again for the access to your collection and permission to work on your property. You will certainly be hearing from me in the spring.

Sincerely,

[illegible]hard A. Boisvert, PhD
[illegible]ty State Archaeologist

RAB:dl

<u>ARCHAEOLOGICAL EXPOSURE</u>

Newly exposed banks

Artifacts dropping into water column

One of only (and best) pottery sites

ADDITIONAL CONCERNS

<u>EROSION CONTROL MEASURES</u>
Emergency permit allowance
NHDES involvement
Abutter effects

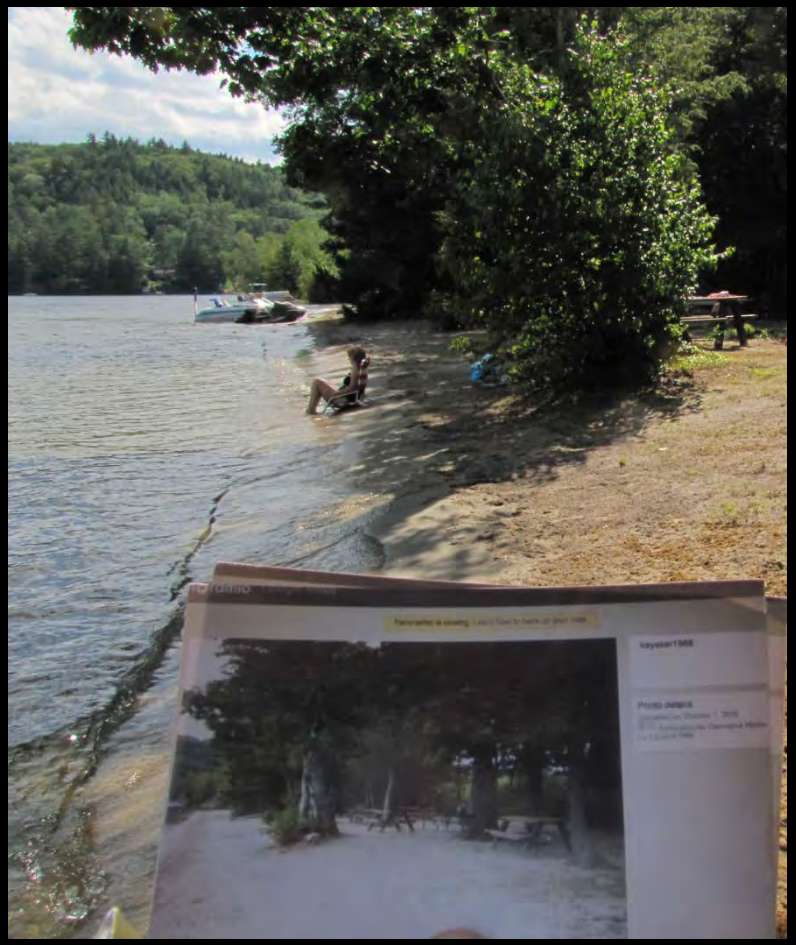
NHDES DAM BUREAU

Current Goals of Management

- Manage releases from the dam to adhere to the current management plan.
- Flood Reduction (both lake and river).
- Release of 250 cfs or less from the dam, when conditions allow, to maximize the generation potential of the river.
- Release minimum flows of 80, 60 and 40 cfs during the months of June, July and August for river fisheries health, if conditions allow.
- Limit the fluctuation of fall water levels to protect cold water species during spawning.

NEXT STEPS

- Complete assessment of erosion concerns along entire lake shore
- Establish monitoring grade stakes where warranted
- Ensure adequate representation for any adjustment in management plan
- Seek legislative action as required
- Long-term monitoring



Acknowledgments:

NH DES Dam Bureau
Newfound Lake Region Association
Town of Hebron
Mr. Douglas McLane