



Devils Lake Water Improvement District

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www.DLWID.org

Quick Look:

- Lake Level Decision
- DEQ \$\$\$
- NOAA-ARRA
- Lake Steward
- Intern

AGENDA

Regular Meeting

2009 April 2 at 6 pm. in the DLWID Office.

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| I. Minutes of the Previous Meeting | 6:00 |
| II. Financial Report | 6:05 |
| III. Public Comment (Agenda Items, Please limit comments to 5 minutes per person) | 6:10 |
| IV. Unfinished Business (Agenda Support Item A) | 6:15 |
| a. Boat House/Docks | |
| b. Land-use Complaints | |
| c. Lake Level Decision | |
| d. The Devils Lake Plan | |
| i. Native Revegetation (Jack Strayer) | |
| 1. Tetra Tech | |
| 2. DSL Removal/Fill | |
| 3. DSL Easement | |
| 4. USACE Removal/Fill | |
| ii. Model: DEQ 319 Grant | |
| iii. SolarBees (Brian Green) | |
| 1. Grant Submission Update | |
| 2. DEQ Revolving Loan Program | |
| 3. SolarBee Proposal | |
| V. New Business (Agenda Support Item B) | 7:30 |
| a. Lake Steward Award | |
| b. Internship | |
| c. NW Business Expo | |
| VI. Non-agenda Items | |
| VII. Public Comment (Non-agenda Items, Please limit comments to 5 minutes per person) | |
| VIII. Announcements | |
| a. KBCH 1400 am: following Tuesday 7:15 am | |
| b. NW Business Expo: April 3, 2009 | |
| c. Earth Day: April 18, 2009 | |
| d. Next Meeting: May 7, 2009 | |
| e. Budget Committee : May 11, 2009 10 am | |
| f. SOLV: May 16 th , 2009, Union 50 | |
| g. Oregon Lake Association: September 11, 12, 2009-01-30 | |
| h. Erosion Control Seminar: October 8, 2009 | |
| IX. Adjournment | 8:00 |

Meetings of DLWID are handicapped accessible under the ADA.

If special accommodations are needed, please contact the District Office at (541) 994-5330 prior to the meeting.

I. OLD

A. Boat House/Docks: No Update

B. Land-use Complaints:

2551 EDLR: Viewing Oregon DSL website for removal/fill applications I noticed an application not yet ready for review from the owners. The application they suggest to simply move the wall back to the original footprint of a former wall. Effectively the armored shore would be just a foot or so back from where it currently sits. It is not clear that there would be any shoreline benefit to this project. No beneficial vegetation is suggested. Grass to be planted to concrete barrier's edge. In Section 4 of their application it states the following:

"Protect lake from silt caused by erosion. Replace retaining wall (that was originally built on dry land in 1961) and was failing do to unnatural water levels caused by Devils Lake Water Improvement Dist. Mismanagement!"

11th and EDLR: Sent letter to DSL supervisor Warner-Dickason who replied the following:

Hi Paul,

Carrie Landrum has been working with Mr. Bently and Mr. Morrow to resolve the case. Apparently, the property owners are experiencing a serious family illness and unemployment. They have been in contact with Carrie.

Drayton Excavating paid their \$3,000 civil penalty. We will continue to pursue removal of the bark materials, but we do not intend to issue another order to the homeowners at this time.

Seid Creek Slide: Landslide that occurred in early January 2009 above Seid Creek was not pursued by DSL or DEQ. See email except below again from Warner-Dickason:

Hi Paul,

I certainly understand your points below, but the bottom line is this: if we don't have jurisdiction, we cannot do anything. We would have to prove that the fill on upland was purposely placed there so that it would fall into the wetland or stream below. Otherwise we don't have jurisdiction on material placed on upland.

Cathie Davidson and I have discussed this site on several occasions and most recently we talked about the landslide. She was not able to provide information that would lead us to think Mr. Drayton "purposefully" placed fill material above the wetland so that it would fall into the wetland or creek below.

To make an enforcement case we'd have to convince an ALJ that the person moved material by artificial means into jurisdictional waters. Here, that would mean proving that when the person placed the stockpiled fill on a slope above a "water of the state" he did so with the intention that it would slide into the waterway.

If we had solid evidence that the person had a history and pattern of similar actions (placing fill in a stockpile on upland, which later slid into a jurisdictional water, where the person then left it there or even smoothed it over and placed more fill), then it might be possible to prove the case. When I asked Cathie if she thought this was a pattern of practice to expand the upland area, she said that she didn't have any information to support this. Do you folks have such evidence? If you do, let us know.

I hope this helps to clarify.

NOAA-Fisheries began investigation into the slide beginning March 10, 2009. No word as of yet if they are moving forward on this. We later received a copy of a DSL notice of potential R/F violation apparently based on further filling above the wetland where the slide occurred.

C. Lake Level Decision:

The board has agreed to make a decision at the April 2, 2009 meeting. The decision would not be changeable after the middle of the summer per our permit. The most recent evaluation of the permit would allow for 18" of board space, with a maximum impoundment height of 9.53'. Last year the dam was set at 9.74' from 9.91 the year before. The current height of the lake is about 9.2'

Background: Many reports have been given regarding the dam, including this one in October 2008:

Lake Level Update: Lake has varied only a few inches over the last month. Currently the lake level is 9.6' and with the rains we had it did increase slightly but then returned to below the height of the lowest boards, and is now only flowing out of the fish notch. With this reduced flow, we have again identified a water quality problem associated with the dam. When the water stops flowing over the dam, and is only flowing through the fish notch, there is point where the water doesn't draft off the top as there is a top bar in the fish notch to provide strength. This backs up the water and floating debris. What we have found in the past and again this week is that this backed up surface water creates water quality degradation. The bar effectively blocks the likes of surface scum including cyanobacteria up behind the dam. Toxic levels of microcystin were documented in the scum that would have otherwise flushed out to sea. Water quality is also reduced as we find higher E coli readings when the water is not drafting off the top and pulling floating material out to sea. We often find feathers which are associated with sea gulls backed up behind the dam. I have been working with Steve to redesign the outfall to always pull water off the top of the lake which should help alleviate the problem. It is however a concern and would remain a concern even if modifications were made as we are artificially slowing the water. The dam causes stagnation, and stagnant water is not healthy regardless if the top layer is being slightly drafted or not.

Other issues with the dam: Installation, maintenance and removal: This is an ongoing cost to the operation of the dam. We pay Schooner Creek Construction \$525 a month. It might be estimated that 20% of the job description relates to the dam itself. Insurance: We insure the dam for damage and is part of the \$275 annual rate we pay for all property owned by the District. Flooding: We have heard examples of this particularly this year. Complaints about campsites being flooded, shorelines being saturated have been documented. Recreation: We have heard two sides to the recreation argument. One is boat access; the other is choppy water, loss of beaches, soggy uplands and reduced use periods of the lake and the shoreline as a result. The increased choppiness of the water has been attributed to the lack of beaches to absorb wave energy. Rocked and armored walls contribute to the choppiness as well. Erosion: we have also heard of complaints of additional erosion from the heightened lake level. Factors that would back up such claims are if shoreline plants that are only adapted to partial (not year-round) inundation, may die and lead to shoreline loss. A shoreline that has a water regime that fluctuates more widely may have a series of plants with varying degree of water tolerance. This natural transition is more capable of holding shorelines together, as upland plants' roots tie in with the facultative wetland plants (those that can stand some water), and the facultative wetland plants roots tie into the roots of obligate wetland plants (those plants that require water saturation), which mesh with submerged aquatic plants. Artificial height control may limit this transitional plant ecology as it may favor aquatic plants over facultative wetland plants and more upland species which have stronger root systems. Wetlands: It is difficult to gauge the net loss or gain of artificially raising the lake. Wetlands are lost in one area as they become aquatic systems and may be gained in other areas as uplands get inundated. In lake basins with steep side walls, like a bathtub, wetlands would like be less affected by artificially raising the lake level. The wetted areas would be just up higher. In more complex basins like Devils Lake wetland gain and loss is much more difficult to determine. Naturally wetlands grow and shrink year to year. Wetlands are dynamic systems which are adapted to routine inundation and dry periods. Water

fluctuation is a natural part of the system. In shallow lake beds, wetlands may spread out towards the lake quickly as the lake bed gets shallower over geologic time. This wetland growth is tempered by large climatic events and annual weather patterns that potentially decrease wetland expansion with high water flows which cause erosion. Wetlands rely on the alternating cycle of dry and wet weather. Nutrients are brought into the wetland during flooding and high water. During dryer, sunnier times wetlands take advantage of the nutrients to photosynthesis and increase root mass. This is the natural boom and bust of wetland cycles. Artificial control over water height generally limits then where wetlands can grow and thus may generally have a negative effect on their viability. Wetlands provide immeasurable value to lakes and wildlife, but certainly increase water quality by using nutrients and blocking sediment. When wetlands die back, they decompose and provide chemical decomposition products (hydrogen peroxide) that inhibit cyanobacteria. As much of Devils Lake is developed, the best spot for increasing wetlands maybe towards the lake center verses towards uplands where development has decrease the biodiversity. Therefore wetlands are likely more favored without artificial augmentation which allows vegetation to grow lake ward and expand the riparian wetland buffer.

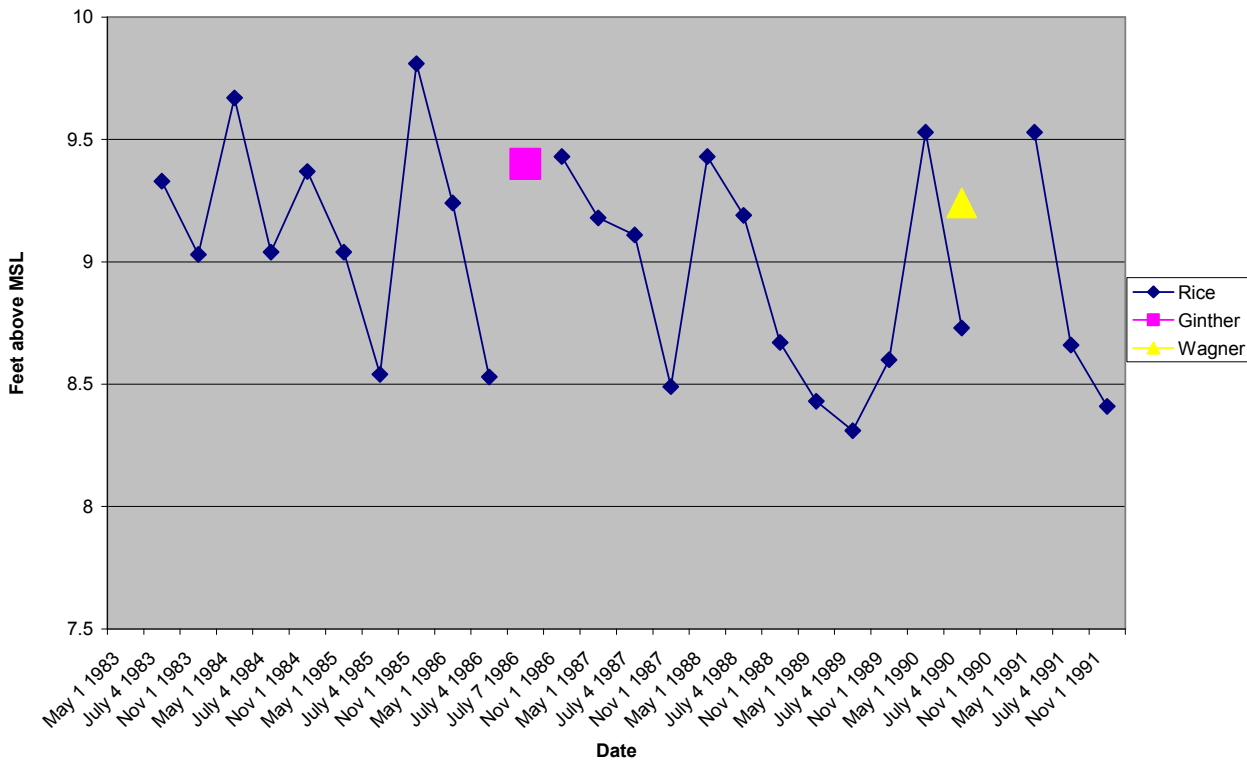
Wildlife barrier: the dam in the summer is a barrier to young flightless birds. The slope of the land on either side does not lend it self to being traversed and routinely young birds are trapped below the dam for often hours at a time. They risk injury as they try to get over and around the dam. Fish: The dam is built with only the most minimal fish passage requirements. This is a notch in the dam 6" wide. This is not a problem in the winter as the dam is taken out in October, but in the spring fish are migrating to sea. Smolts use flow as a cue to find the ocean, and thus putting a dam in when the fish are looking for the cue to find the ocean is counter to their survivability. We have attempted to pulse the dam during the night when their outward migration is the highest (May). Other fish issues include when a fish gets accidentally flushed out to the D River. Only the really strong swimmers have much hope of swimming through the forceful water that flows out the fish notch. The notch is really only meant for downstream passage for outward migrating smolts. I have seen a few carp get flushed out the dam, one at least was able to get back through the velocity barrier that the rushing water through the fish notch is. Pacific Lamprey: Native lamprey migrate in and out of coastal systems. They like salmon are born in freshwater systems and head to sea, only to return to freshwater to spawn. The Siletz Tribe is building the knowledge base around these anadromous organisms in our area which have bee greatly impacted by development. It is known that the Pacific Lamprey migrate back to freshwater in the spring time and have only limited food reserves for this migration. Dams are obstacles to their migration and are known to reduce the viability of these native animals. As Devils Lake has native spawning ground for Coho, it is expected that Pacific Lamprey may have inhabited our area as well, and may in fact be present at some low level.

More Background and a summary of input: 2009-03-27

Devils Lake was been artificially raised in the summer since about 1996. This has kept the lake higher by approximately 1-2 feet depending on how well the dam was maintained and from where the mean low level might have been. Little is documented about the actual normal low level that occurred before the dam and before the grass carp. While the mean high level has been known to be 10.4', no datum exists to my knowledge of a mean low, but 8.3 seems to be about the lowest the lake has gotten since consistent records were kept in 1997. These lows occurred after presumable the dam might have been removed in October.

The other records we have I presented last month and are summarized again in this graph. As the data represents a time before the lake was artificially augmented, the lowest values occurred predictably in summer. From these data it would seem that the lake varied no more than some 18" year to year in the mid-1980s to early 1990's.

Historical Lake Heights



The normal operation of the dam has been to put the dam in on or near April 15th, using 3 stacked 4"x8" boards laid lengthwise across the cement base. The boards are held in place by the metal I beam super structure bolted to the cement. A fish passage notch 6" wide and as deep as the height of the boards is left open throughout. In mid May the dam is opened up in one 8 foot section all the way to the base of the concrete to facilitate the outward migration of threatened Coho salmon. This usually is done every other night for the course of the night between May 15th and May 31st. After May the dam is left in place until Oct 15th or so when the entire structure is removed. This is done to prevent damage from winter storm surges up the D River. In accordance with the water use permit, after July 1st in the year no additional water may be backed up, thus the output through the D River must equal the influx through streams.

In March of 2006 the dam was repaired and the water was maintained at from 10.0' to a low of 8.95 at the end of the summer. The year before, the lake was maybe 8.9' by August. Many lakefront owners applauded this repair, noting better boating access in the summer of 2006. One or two dissents were also received. In 2007 the lake varied between 10.0 to 9.12'. The State Park complained in early spring about flooding, but by opening and then fully shutting the dam the problem was alleviated and did not return during that year. A contractor on the lake came before the board requesting the lake be kept at 10.0'.

Last summer (2008) complaints were received from the State Parks about flooding. The District responded to these complaints by releasing water through May 31, 2008. After we reinstalled the dam, the complaints returned. This was different from the year before when we released water at their request, and then the park remained dry for the summer of 2007. Aggravating circumstance revealed indicated that the State Parks had dredged the canals that lead to the lake from their property. This allows water a direct path into and out of the park. This alone might not account for flooding though as some level of connectivity would exist through the ground water irrespective of the canals. Creating these canals though is likely to have caused subsidence of their property. Opening up wetlands to oxygen creates an oxidizing environment, which tends to more rapidly decay the peaty bog material which forms

much of the property. In this oxidizing environment plant material that otherwise would be accumulating, degrades through microbial decomposition. This can lead to subsidence of the entire wetland which may explain for the near year-round inundation of certain campsites.

At the request of the State Park, Oregon Water Resources Department conducted a review of the permit. Their findings reported just last meeting indicated that some error was made in calculating the board space that would impound the amount of water legally described in the water storage permit. The permit clearly stated that the District could use up to 3 stacked 8" tall boards. This qualified for approximately 24" of impoundment above the cement structure. Using nominal sized 4"x8" boards (which are 3 1/2" x 7 1/2"), the effective impound was 22 1/2 ". The cement base was also clarified to be at 8.03 above mean sea level during this permit evaluation as had been the case since 1992 when it was rebuilt. Upon Water Master Greg Beaman's review, the correct height of stacked boards should have only been 18". This would place the maximum height at 9.53' above sea level.

During the course of last summer other concerned property owners also voiced opposition to the height of the dam. A petition received by the District and signed by 21 property owners sought a lowering of the dam to 9.0' during the summer. Reasons for the reduction were centered around the claim of severe erosion, loss of beaches that would otherwise dissipate wakes, and loss of recreational use due to choppy water from the bathtub effect of reverberating wave energy against hardened surfaces such as rock retaining walls and rip rap. The board was later provided with photographs of properties claiming erosion. Several (5-7) individuals came to the board meetings in support of this petition over the course of the last 12 months.

Opposition to this proposal has also been voiced. Approximately 5-7 individuals have come before the board or provided email or blog comments to voice their opinions on the lake level. Arguments for keeping the lake level at its maximum included the loss of boat access, that the lake is artificially controlled in the winter for emergency dredging, lowering the available pool of water in the summer, the erosion effects of waves in shallow water, and loss of property value.

A third set of voices pressing for the removal of the dam was also heard. Individuals reporting in person and through email prompted for the allowance of natural water fluctuation to facilitate wetland functions, fish & wildlife migration, and to reduce erosion. The reservoir like management of a lake decreases vegetative shoreline productivity, leaving a ring around the lake void of vegetation which would have grown during the summer but was inundated with the recreational water impoundment.

D. The Devils Lake Plan

- i. Native Revegetation (Jack Strayer)
 1. Tetra Tech: This item is now closed until further notice. Project on hold.
 2. DSL Removal/Fill: Application has been withdrawn with notice of intent to resubmit at a later date.
 3. DSL Easement: Application has been withdrawn with notice of intent to resubmit at a later date. As little DSL staff time was devoted to this project, the application fee of \$750 was returned.
 4. USACE Removal/Fill: Application has been withdrawn with notice of intent to resubmit at a later date. Comments were sent by NOAA-Fisheries regarding how a project might be improved.
- ii. Model: DEQ 319 Grant: I have left messages with David Waltz regarding a revised plan, but have not heard back. I am estimating that DEQ staff is also inundated with Recovery Act dealings. I have spoken with Jesse Ford about the project and have a mutually better understanding as to how to move forward.

iii. SolarBees (Brian Green)

1. Grant Submission Update:

EPA--West Coast Estuaries Initiative: Submitted Feb 17, 2009.

NOAA-ARRA (Recovery Act): I have been compiling this application and plan to submit for the whole cost of the SolarBees less the \$310,000 of the Districts. Significant effort in identifying the economic benefit of the project has been conducted. Submission Due Date is April 6, 2009.

NOAA-Broad Agency: funding became available in April of 2008, and is likely not still available, although that has not been confirmed. When the NOAA-ARRA became available all efforts were directed to that application.

Compton Foundation: A small \$46,000 grant request has begun, but priority for Recovery Act dollars has superseded this application. Further the application itself is much more complicated than originally thought. Collaboration with PADL will have to occur to be able to complete this application, should we continue to seek it.

2. DEQ Revolving Loan Program:

I submitted a \$762,000 application for SolarBees and \$100,000 for a septic tank loan program. I have received two follow ups on our application, so I believe it is moving as best we can anticipate. Details for the loan are as follows: Calculating a 20 year \$762,000 loan at 0% interest with a 50% principle forgiveness, monthly payments would amount to \$1,587.51 or \$19,050.12 annually. We have been budgeting \$20,000 a year for debt servicing in each of the last two years, and would have been able to meet that obligation in both years.

3. SolarBee Proposal: SolarBee has provided assistance in the NOAA-ARRA grant.

- A. Lake Steward Award: We received one nomination and I have confirmed with that person that they would accept. I am thus ordering an award on their behalf, and have purchased a set of four tickets for the banquet which will be held April 18, 2009.

- B. Internship: we received 6 applications. I interviewed five of those candidates (2 in person, 3 over the phone). Uniquely 2 out of 6 applicants were international students. The candidate with the best skillset for this position I have determined is Jie Liu, a Chinese Student currently doing her Masters in Chemistry and Statistics. She is highly trained at MS Access as well as obviously chemistry, so with our current object of data management and water quality management she is certainly the most qualified. She is also proficient in web site development. I have asked that she provide us information about her work eligibility as she is an international student. Other candidates included applicants from OSU, U of O, and Northern Arizona.

- C. NW Business Expo: This is a local tradeshow being produced by the Lincoln City Chamber. 55+ booths will be there including big corporate sponsor of Microsoft. This is a regional draw, plus many locals as well. The expectation for the event was large enough to warrant in my opinion a booth for \$100. As this is the limit of my discretionary spending I decided to sign up, as it will provide a pre-season opportunity to meet with people regarding SolarBee, cyanobacteria, E coli, SOLV and other items we are working on. The cost of the event comes out of the budget for outreach. As the chamber has gone from weekly meetings costing \$10 a week, to monthly meeting at \$15 a month, the expense was well within our existing budget. The event is April 3, 2009 at Chinook Winds Casino.