ALGAE TASK FORCE MEETING #3
MEETING SUMMARY
July 29, 2010

1. **Meeting Summary – June 3**

2. **Additional Agenda Items**
   None.

3. **LMWQF Update**
   Next meeting will be on October 26, 2010

4. **Task update**
   -Dan requested MWH to measure temperature when they do their sampling. Also, they will save a minimum of 10ml for the City of Henderson to do sampling with.

   -Doug got a copy of the MWH report for 1992-2010

   -Dana will work with MWH to pick up the samples for testing

   -Todd and Doug will work on density to see how it enters the Bay
   Peggy presented data that Todd had put together. His interpretation is that thermally the water column is stratified, but with limited development of specific strata. The epnilimnium from 0-2m, the metilimniom is 2-17m, and the hypermilimniom is 17m-to the bottom. On top of this there is complex conductivity dynamics with high conductivity water near the surface and then interflows mid-water column at 10 and 15m of higher conductivity water.

   Density from LVB4.15 was compiled into a profile. It is driven primarily by changes in temperature. Wash density at the dyernal high and low values were added. This suggests that the Wash water will enter the Lake differently depending on the time of day. When the density is at its lowest (mid-day warming), the Wash water will enter as an overflow. When the density is at its highest (early morning hours), the Wash water will enter as an interflow at 10m depth. The daily fluctuations in density and seasonal fluctuations are part of the reason the Wash seems to be all over the place. The figure for June 29 shows the Wash going out over the surface up to 16m (past the Bay into the Lake), due in part to the rainstorm that occurred shortly before the sample date.

   -Doug will work on gathering LWLVB_B data and reviewing

   -Doug reported that he had taken the two previous Algae Task Force reports and set up what he thought the questions were that they were asking and then apply some data to it (see attached).

   A. 2001 Algae Task Force
      a. Get Federal $ for more research (LV Wash and LWLVB temperature chart) – the water across the delta is getting warmer. The water flowing out of the delta immediately into the Bay is warmer in the summer.

b. Assess non-point source nutrient loadings (MWH Wet Weather Monitoring Data 1992-2010) They gather this for Flood Control and when a storm occurs where 0.1" or more of rainfall is detected they go out and sample. Doug said he did not think the data had been QA/QC because orthophosphate should always be lower than total phosphate and there are 6 times where the orthophosphate is higher. There is a need to test over a period of time not just first flush to get a better idea about phosphorus during storms.
c. Use model to determine assimilative capacity in Bay and Lake – CWC is dong a model run and should be completed in the next few months. Not sure if they looked at assimilative capacity, but we will see.
d. Begin year round P removal at wastewater treatment plants – this was one of the recommendations that was implemented rather quickly. Also , plant optimization began.
e. Conduct study to determine exact cause of 2001 algae bloom – opinion is viable, but not exact cause. There have been three things that have changed: year round P removal, CCWRD plant optimization, and Quagga Mussels.
f. Form work group to ensure nutrient loadings reduction from high source area have been identified – if look at high phosphorus and the elevation of lake the graph shows the lake levels have consistently gone down and have also removed more Total P. If the lowering of the lake was a significant factor when elevation was 1190 ft. it should be more of a factor now, but it is not.
g. Proceed with SCOP project to obtain assimilative capacity – obtained improved water quality by POTW Total P removal
h. Characterize LV Wash insertion into Bay – surfer plots after a storm the highest conductivity is in the top 2 feet. Looking for surface overflows between 2001 and 2010. In the spring and early summer of both years there were surface overflows occurring from the Bay into the Basin, so the Wash had an impact all the way out.
i. Characterize LV Wash temperature increases across delta
j. Further study nutrient release from sediments as lake lowers – lake level plot showing sample sites and as the lake levels go down that 3.5 miles out for the delta is eventually going to be out in the Basin. NDEP may need to look at this and some re-working of the water quality standards.

Jim LaBounty's additional factors

a. Spring precipitation impacts – hydrolab data showing daily fluctuation in density. Going to be difficult to determine what Wash does at insertion to the Bay. What has a greater impact on density – conductivity or temperature? In the Bay, temperature plays a bigger part in density.
b. Determine impacts of constructing erosion control structures – currently 12 have been built with 11 more to be constructed. Since 2001 to present they have been under construction, so the conclusion is that they probably did not have an impact. There were however, pulses of warmer water going out from Lake Las Vegas due to them holding it back then releasing it. This also could happen if there was a storm water release from the lake during a warm spring rain.
c. Lake Las Vegas warmer overflows could have adverse impact. Both increase nutrients and seeding different algae species - no flow or water quality data could be found for the overflows. Jon Palm will check and see what information he can find.

B. 2004 Algae Task Force
Article written by Steve Weber and variety of reports distributed

C. 2010 Toxic Algae Bloom in Lake Las Vegas
March 6, 2010 RJ article distributed. It speaks to the large fish kill, as well as that they are not to have toxic algae in toxic amounts, but nothing about natural toxicity.

5. Additional Information

Chlorophyll over the past 5 years has been very low for the sample stations
All samples in the Las Vegas Bay plotted and chlorophyll is still low
Looked like a prime year for another algae bloom, due to nutrients not being there??
Need to collect more data
Golden Algae in Lake Las Vegas was very toxic, even killed the Quagga mussels
Regional Flood Control has a compositor that maybe we could use after the normal 2 samples

6. Tasks

-Jon Palm to look for information on Lake Las Vegas
-Continue to have Todd do surfer plots – Doug will speak with him
-Doug to present an update on the Algae Task Force at the next LMWQF meeting
-Angie to take Dan to look at equipment and put together plan to use it and either COH or CCWRD will review the samples
-Jon Sjoberg – SHED monitor report distribution
-Doug to draft conclusions/statements and recommendations then fine tune at one of the next meetings and move forward from there

Comments for draft to present to LMWQF

Discharger's treatment – more controlled now
Biosystem
Storm
Type of algae
Total P in Wash already – storm stirred it up
No front lawns now
Erosion control structures – more now
Detention basins –will be enhanced
Monitor ecosystem
Quaggas – replacing zooplankton communities
Controls for Lake Las Vegas

7. Public comments

8. Set next meeting date

Thursday, October 7 at 10:00 a.m. at CCWRD – meeting appointment will be sent out