August Lake Conway Data Analysis

Rainfall / Lake Level
NOAA predicted average rainfall last month and we got deluged at 15.22 inches. This was 224% of the 6.8" long term average for the month. At the end of the month the lake level was at 86.96 or a stage of 98% (an increase of 10% from last month). The lake is now well into the "high" range and is still about 1.5 feet above the average for the beginning of September. It is still 0.7 feet above last year's level for this date. NOAA is predicting normal rainfall conditions for the next 3 months. September is approaching in the middle of the rainy season so we should expect the lake level to remain high again this month. Under normal rainfall conditions it is expected the lake will remain steady or fall slightly in the next 3 months. The chart shows an average increase for the coming months but it does not account for the fact the lake level is well above the weir which is discharging strongly. The case in point is the fact that we had 224% of the normal rainfall for last month but the net level change matched exactly the prediction for average rainfall. This means the weir has discharged about 8.4 inches of rainfall in this basin in August.
http://www.cpc.ncep.noaa.gov/products/predictions/long_range/lead01/off01_prcp.gif

This year's accumulated annual rainfall is 45.77 inches which is 7.74 inches more than we had by this time last year. Given the current NOAA normal rainfall prediction and the rainy season in play we should expect the lake to remain above the weir this month.
[Lake levels reported here and previously are based on NGVD 29 and will be revised to conform with NGVD 88 starting in 2016.]

Recommendation for 8" Reduction in Lake Level
Given the lake level today (9/7) is 87.12 a 4" rainfall would bring the elevation to 87.45 which is higher than it has been in 30 years. We just had a 6" and 2 - 4" storm events last month. This is a level where the tops of most docks built according to recent codes would be only 6 inches above the water. Storm waves can easily be 6" high (Waves from the current variety of wakeboarding boats can reach 12".) making them within striking distance of the bottom of the deck boards placing them in danger of being knocked out by those waves. Additionally, the electrical systems for most docks are run at the bottom of the stringers placing it in the water today. If a system is not sealed properly there is the potential for electrocution. Additionally, most of the drainage systems around the lake, including lakefront swales have been constructed in such a manner that they do not operate efficiently with a tailwater this high.

It is also possible this lake level could be reached in a single rainfall event. In the past 10 years there has been an average of one 6" rise in lake level during the rainy season every other year. This goes up to 1.8 times each year for 3" or greater rainfall. These numbers indicate a good probability of attaining a lake level in the next 3 months which is conducive to significant property damage in the form of damaged docks.

I recommend some of the boards be removed from the Daetwyler weir until the lake level has returned to an elevation of 86.4 or September 30th, whichever occurs first. This should restore sufficient capacity in our system to accommodate a significant rain event without undue flooding of waterfront properties. Using these parameters as the termination point will insure there is no long lasting effect on the lake level since the expected fall rainfall will raise the level above the weir again. If this process is delayed a month the probability of full recovery is substantially reduced. While this will produce an increase in downstream flow for a short period of time it will reduce the downstream flow after the boards are replaced. A potential problem could occur if a significant rainfall event occurred during the drawdown time. This could be mitigated by replacing the boards should a large downstream rainfall occur. While that will not reduce the immediate peak runoff it will allow accelerated recovery due to the reduced upstream contribution from Lake Conway. Of course this should be coordinated with downstream entities.

El Nino / Southern Oscillation (ENSO)
NOAA's August 13th ENSO: Diagnostic Discussion reports an El Nino Advisory which is 90% likely to continue through the end of the year and into spring. This indicates a possibility of increased winter rainfall. There is little if any link between ENSO and Florida's rainy season.
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.pdf
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/lanina/enso_evolution-status-fcsts-web.pdf

Lake Temperature
The swimmers are out in force. Starting at 85 degrees the lake temperature remained essentially flat ending the month at 85 with an early dip to 81. The average water temperature was essentially the same time last year. Let's call it normal. The Amoeba season is in full swing so caution is due. More amoeba information may be found at: http://www.doh.state.fl.us/chd/volusia/eh/lab/pdf/amoeba.pdf

Hurricanes
The August 4th report, by the University of Colorado' s Philip J. Klotzbach and William M. Gray, indicates "below-average Atlantic hurricane season" due to the combination of a strong El Niño event and vertical wind shear in the Caribbean at a record high in July. It predicts the likelihood of hurricane events to be about 50% lower than the long term average. This was illustrated by the 2 tropical storms last month which were torn apart by wind shears and a 3rd on its way expected to meet the same fate.
http://tropical.atmos.colostate.edu/Forecasts/2015/aug2015/aug2015.pdf
If you would like to see an estimate of the probability of tropical storms hitting where you live check out this site. It is also produced by William Gray of the Colorado State University.
http://landfalldisplay.geolabvirtualmaps.com/ It is showing 0.4% chance of a named storm entering Orange County this year. Please bear in mind that it takes only one event to wipe out everything so be prepared.

Planting and Weed Control
If you are doing aquatic planting now it should be off shore in 6 to 12" of water. With the lake level at the 98% stage we will assume this is a fairly long term trend. We should still plant low to prevent the plants from being high and dry if the lake level drops next year. If planted too far out in the water they will not root well and could be washed out by wave action. When planting in the water it helps to have an offshore barrier of some sort to break up the waves to prevent them from being washed out by wave action before they root. Duck potato in less than 10" of water are easy meals for ducks. Yes, ducks do like duck potato for breakfast, lunch, and dinner.

To help us all enjoy a clear lake make sure you have maximized the number of aquatic plants on your shoreline. These plants help consume nutrients which run off from your yard and they provide habitat and food for fish and fowl. A sandy beach = a cloudy lake.

You might be inspired to attack some of that torpedo grass with a weed wacker. **DON'T DO IT!** That is about the worst way to control the weeds on your beach. It does not kill them. If you are doing any lakeshore cleaning, please capture **all** of your cuttings. Sprigs of torpedo grass are very hardy and easily survive an excursion across the lake while growing a new set of roots. Once on the beach they immediately start to take over and choke out the beneficial plants. A single sprig will take root and in three months it will be a circle of healthy torpedo grass 10 feet in diameter. Considering it is likely over a hundred of these sprigs could float away from a weed wacking job, your efforts could easily seed another 1000 square feet of torpedo grass all around the lake. Respect your neighbors and capture weed bits.

[As an example on the weekend of 8/3/13 someone on the west to south west side of the middle lake wacked their torpedo grass and on 8/5 I fished out nearly a bushel of torpedo grass sprigs which had just floated in. Probably a half mile of shoreline is now planted with new torpedo grass. These get caught in our good weeds so we cannot see them then choke out the good plants in about a year. As long as people do not collect their trimmings it will be impossible to control torpedo grass.]

The best approach for controlling torpedo grass is with lake friendly herbicides. These may only be applied with the proper permit from Orange County Environmental Protection Division 407-836-1400 and Florida Fish and Wildlife Conservation Commission 407-858-6170. These permits are not expensive or difficult to obtain. The County allowed weed free area on any lot is a maximum of 30 and there is no grandfathering of larger cleared areas. In any event make sure you collect any and all weeds you remove from your beach.

Orange County Lakeshore Vegetation Removal Permit:
http://www.orangecountyfl.net/PermitsLicenses/Permits/LakeshoreVegetationRemovalPermit.aspx

County Lakefront Clearing Regulations
Orange County Code of Ordinances - Section 15-251 through Section 15-256
http://www.orangecountyfl.net/Portals/0/Library/Permitting-Licensing/docs/ArticleVIILakeshoreProtectionCode.pdf

Florida Fish and Wildlife Conservation Commission Permit page including links to the permit and regulations: http://myfwc.com/license/aquatic-plants/

NOAA current La Nina - El Nino Synopsis (with discussion):
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.pdf

Orlando Weather Averages by month http://countrystudies.us/united-states/weather/florida/orlando.htm

Live weather data on the north shore of the middle lake, updated by the minute, can be viewed at:
http://www.wunderground.com/swf/Rapid_Fire.swf?units=english&station=KFLORLAN51

Thank you for your help maintaining our lakes.

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