October 10, 2017

Ms. Kerrie J. Hauser
U.S. Army Corps of Engineers
250 N. Sunnyslope Road, Suite 296
Brookfield, WI 53005

Re: *Lake Belle View Restoration Project – 2017 Monitoring Update*
MARS Project Number: 1428-011

VIA: US MAIL

Dear Ms. Hauser:

Montgomery Associates: Resource Solutions (MARS) has prepared this letter with enclosures to update the U.S. Army Corps of Engineers (USACE) for the Lake Belle View Restoration Project. The project was covered under the USACE permit No. 2009-01035-ADJ and permit compliance criteria are described in the USACE permit. The project was constructed in 2010-2011 and 2017 is the sixth year of restoration activities.

MARS documented the progress of the restoration project of Lake Belle View and prepared and submitted a letter report summarizing the progress as of 2016 to the USACE. The letter report was dated May 12, 2017 and evaluations pertaining to water quality, aquatic vegetation, and fish assessments for Lake Belle View were not included. Richard Wedepohl and David Marshall, who are former Wisconsin Department of Natural Resources employees who specialize fish habitat and water quality assessments and who have been involved with the restoration of the Lake throughout the project, have prepared a report detailing their findings related to various water quality parameters that were required by the USACE in the original issuance of the permit for the lake restoration project. Their progress report is enclosed with this letter.

Restoration activities are outlined in the document *Mitigation and Restoration Plan for the Lake Belle View Restoration Project* as *Revised April 2010*. To demonstrate compliance with the special conditions listed in the original USACE permit authorization and criteria described in Sections 8 and 9 of the Plan, MARS has prepared the "Lake Belle View Permit Compliance Table for 2017" enclosed with this letter. As indicated, the bulk of the performance standards have been met. The Village will continue to manage the project for environmental and recreational functions.

Please feel free to contact me at 608-839-4422 should you have any questions or comments.

Sincerely,

Montgomery Associates: Resource Solutions, LLC

Christian Burnson
Water Resources Engineer

Enclosures: Lake Belle View Permit Compliance Table for 2017
Lake Belle View Monitoring Progress Report

Cc: Roger Hillebrand, Village of Belleville
Brian Wilson, Village of Belleville

Permit Item No.	Summary	Condition Met?	Notes:
1	The permittee is responsible for insuring that whoever performs, supervises or oversees any portion the physical work associated with the construction of the project has a copy of, is familiar with, and complies with all the terms and conditions of this permit.	Y	
2	The permittee shall insure that none of the work performed to construct, operate or maintain this project (including preparatory work, staging, site clean-up and mitigation work) causes impacts (including non-jurisdictional impacts such as drainage or non-point source sedimentation) to other waters or wetlands except those impacts expressly allowed by this (or a subsequent) Corps permit. Prior to initiating any physical work on the project site, the wetland areas that are to remain undisturbed shall be clearly marked in the field so that the boundaries are visible to equipment operators. For example, you may use appropriate signage and orange construction fencing, silt fencing, or continuous strands of flagging to mark the boundaries.	Y	No construction activities in 2017
3	To prevent the spread of non-native and/or invasive plant species, the permittee shall ensure that all equipment used to complete the authorized work is cleaned before arriving on site and prior to mobilizing to another site. Wash water shall not be discharged into any wetland, waterway, or other surface water conveyances.	Y	No construction activities in 2017
4	An as-built report shall be submitted within one month of the completion of construction. If the project is phased, an as-build report shall be submitted within one month of completion of each phase. This report shall summarize the construction activities, describe any changes to the original plan, describe any corrective actions needed, and provide an as-built survey showing a minimum of 1 foot elevation contours or spot elevations. This survey shall be prepared by a licensed surveyor and certified by the licensed surveyor or by a registered professional engineer to conform to the design plans and specifications.	Y	As-built drawings submitted in March of 2012
5	The annual median lake stage shall remain at 858 feet +/- 0.5 feet, or within +/- 0.5 feet of the Sugar River annual median stage at the dam	Y	See 2016 Monitoring Letter Report prepared by MARS and submitted to the USACE in May of 2017.
6	Submergent, floating-leaved, and emergent aquatic communities in Lake Belle View shall be established or enhanced, and monitored in accordance with the final *Mitigation and Restoration Plan for the Lake Belle View Restoration Project, as Revised April 2010,* prepared by Montgomery Associates.	Y	See 2016 Monitoring Report from ERC. Plant community was originally established but lake drawdowns to eliminate carp impacted the emergent zone. 10 emergent plant species were observed in this zone with 70% being native. Carp management is ongoing.
7	The enhancement of 0.51 acre of floodplain forest wetland, restoration/creation of 11.6 acres of floodplain forest wetland, and creation of 6.6 acres of floodplain forest, wet-mesic to mesic prairie, and forest shall be in accordance with applicable Special Conditions contained below and in accordance with the final *Mitigation and Restoration Plan for the Lake Belle View Restoration Project, as Revised April 2010,* prepared by Montgomery Associates.	Y	Creation of floodplain forest wetland occurred when dredge spoils were moved and graded. See previously submitted monitoring reports and Evaluation of Tree Planting by ERC performed in Summer 2016.
8	As compensatory mitigation to offset the unavoidable loss of 3.94 acres of open water and 0.41 acre of floodplain forest; 4.56 acres of restored/created floodplain forest shall be protected in perpetuity by covenants or conservation easement that prohibits incompatible uses. The protected area shall be in a contiguous area and shall be selected in coordination with and receive prior approval from the Corps of Engineers. The approved covenants or easement shall be recorded within 60 days of the completion of the earthwork and construction, and a certified copy of the recorded covenant shall be returned to this office.	Y	Conservation easement was prepared, submitted, and recorded in 2012
9	Wetland enhancement activities within the 0.51 acre floodplain forest shall be conducted in a manner that does not remove (dead or alive) existing tree species present. Any dredged or fill material placed in the 0.51-acre wetland enhancement area shall be placed in manner that does not change the area from wetland to dry land.	Y	See previously submitted monitoring reports
10	Wetland enhancement, restoration, and creation activities shall begin within one year of start of construction of the authorized project. All earthwork and construction on the mitigation area shall be completed no later than 1 year after the work authorized by this permit is completed.	Y	See previously submitted monitoring reports

Permit Item No.	Summary	Condition Met?	Notes:
11	Monitoring reports are required: Mitigation monitoring reports shall be submitted in accordance with the *final Mitigation and Restoration Plan for the Lake Belle View Restoration Project, as Revised April 2010,* prepared by Montgomery Associates. The reports shall be submitted by December 31 of years identified in the plan referenced. The reports shall be forwarded to: Waukesha Field Office, Army Corps of Engineers at 1617 East Racine Avenue - Room 101, Waukesha, Wisconsin 53186.	Y	The USACE was notified that MARS would submit follow-up data obtained in 2017 pertaining to water quality, aquatic vegetation, and fish assessments in Fall of 2017.
12	By October 1, 2013, a minimum of 11.6 acres of wetlands shall be established and 0.51 acre of forested wetland shall be enhanced. A wetland delineation of the sites applying the current *Corps of Engineers Wetlands Delineation Manual* and applicable regional supplement shall be conducted and submitted by that date. This delineation shall be prepared by a wetland professional.	Y	Wetland delineation completed by ERC in 2014 and report was included in 4th Annual Monitoring Report (June 2015)
13	Control of Invasive and/or Non-Native Species: Control of invasive and/or non-native plant species shall be carried out for 10 full growing seasons (5 years for herbaceous communities) on the mitigation area as defined in Special Condition 7. Control may consist of mowing, burning, disking, mulching, biocontrol and/or herbicide treatments. By the third growing season, any areas one-quarter acre in size or larger that have greater than 50 percent areal cover of invasive and/or non-native species shall be treated (e.g., herbicide) and/or cleared (e.g., disked) and then reseeded. Follow-up control of invasive and/or non-native species shall be implemented as stated above. At the end of the tenth growing season (5 years for herbaceous communities), the vegetative communities shall not contain greater than 20 percent areal cover of invasive and/or non-native species, including but not limited to: reed canary grass *(Phalaris arundinacea),* Canada thistle *(Cirsium arvense),* bull thistle *(Cirsium vulgare),* smooth brome grass *(Bromus inermis),* giant ragweed *(Ambrosia bifida),* common ragweed *(Ambrosia artemisiifolia),* quack grass *(Elytrigia repens),* black locust *(Robinia pseudoacacia),* sweet clovers *(Melilotus alba* and *M officinalis),* non-native honeysuckles (e.g., *Lonicera* x *bella),* and non-native buckthorns *(Rhamnus cathartica* and *R. frangula).* The mitigation area shall have no purple loosestrife *(Lythrum salicaria)* present at the end of the monitoring period. Failure to meet any of the above criteria shall extend the permittee's responsibility for monitoring and control of invasive/non-native species within the mitigation area.	N	Ongoing. 2016 Monitoring Report prepared by ERC found that the mitigation area contained 27% invasive and/or non-native species. Additional vegetation management measures are underway for the 2017 growing season.
14	If the performance criteria outlined above are not met at any time during the monitoring period, the permittee shall provide the Corps with a proposal detailing corrective actions and/or maintenance actions proposed (if any) and an implementation schedule for those actions. The permittee shall implement the necessary corrective measures following review and approval/modification of those measures by the Corps. Upon completion of corrective measures, the permittee shall provide a written summary of the work to the Corps. Additional remedial actions may be required if the corrective measures do not result in satisfaction of the performance criteria during the next growing season.	N	Belleville (permitee) to provide Corps with proposal to continue to mitigate proliferation of invasives.
15	The permittee shall assume all liability for accomplishing corrective work should the District Engineer determine that the compensatory mitigation has not been completed satisfactorily. Remedial work may include regrading and/or replanting the mitigation site.	N	In progress
16	Your responsibility to complete the compensatory mitigation as set forth in these Special Conditions will not be considered fulfilled until you have demonstrated mitigation success and have received written verification from the U.S. Army Corps of Engineers.	N	In progress

Section 8 - Performance Standards		Standard Met?	Notes:
8.1 Hydrology	*Normal pool:* The annual median lake stage shall remain at 858 ft +/- 0.5 ft, or within +/- 0.5 ft of the Sugar River annual median stage at the dam.	Y	See 2016 Monitoring Letter Report prepared by MARS and submitted to the USACE in May of 2017.
	Overtopping of the separation berm: The river shall not overtop the berm and flow into the lake for events more frequent than the 25-year event.	Y	See 2016 Monitoring Letter Report prepared by MARS and submitted to the USACE in May of 2017.
8.2 Wetlands	*Post-construction soil stabilization* . Newly created wetlands will be seeded with a mix of a temporary oat cover crop, permanent native grasses and fast growing forbs. These areas shall be considered stabilized when 70% or more of the ground surface is covered by the permanent grasses and forbs.	Y	See 1st Annual Monitoring Report (2011)
	After 1 growing season, areas seeded with the native cover crop shall have 70% total plant cover with no bare areas larger than 10 square feet. After two full growing seasons, seeded areas shall have 80% total plant cover and 20% cover by native species. After three full growing seasons, seeded areas shall have 40% total cover by native species, at least 30% of the installed species shall be present. This requirement is not applicable if the prescribed burn is conducted after the 2nd growing season.	Y	See 2nd Annual Monitoring Report (2013), 3rd Annual Monitoring Report (2014), and Lake Belle View Restoration Project - 2015 Monitoring Summary
	Prescribed burn and native forb seeding , One full growing season after the prescribed burn and seeding of the native forbs mix, seeded areas shall have 70% total plant cover, seedlings of five installed native species shall be present and widely distributed, and seeded areas shall have no bare areas larger than 10 square feet. Two full growing seasons after the prescribed burn and seeding of the native forbs mix, seeded areas shall have 80% total plant cover and 20% cover by native species, and at least 20% of the installed species shall be present. Three full growing seasons after the prescribed burn and seeding of the native forbs mix, seeded areas shall have 40% total cover by native species, and at least 30% of the installed species shall be present.	N	Ongoing. Prescribed burn performed in Spring 2015. Standard has been met for the first growing season (See 2016 Monitoring Report by ERC).
	Shoreline protection . The current shoreline protection function of wetlands in Lake Belle View is ranked as low, based on the WDNR Rapid Assessment Methodology for Evaluating Wetland Functional Values. Wetlands created by this project shall be evaluated for improvement from rankings of low to at least medium, using the WDNR method, as vegetation becomes established.	Y	Shoreline Protection is rated medium. See WRAM as part of 2016 Monitoring Report completed by ERC.
	Floral diversity . The post-construction cover crop will be a mix of oats, native grass and forbs species. It is expected that floral diversity immediately following construction will be low. Over the first 5 years, wetlands created in this project will be evaluated for increasing trends in native species coverage and diversity. Meander surveys will be used to ascertain increasing trends in the Floristic Quality Index, Mean Wetness Coefficient and Prevalence Index.	Y	Floral Diversity is rated medium. See WRAM as part of 2016 Monitoring Report completed by ERC.
	Tree establishment . Native trees will be planted following the first prescribed burn, which is expected to occur after either the second or third growing season. planted trees will be observed qualitatively to verify that their health and growth rates are consistent with the long-term goal of forested wetland establishment. Five years after trees are planted; the survival rate shall be at least 70%, based on a stem count of both planted trees and naturally recruited native tree species in the restored area.	N	Ongoing. Trees planted in 2015 after prescribed burn. ERC observed that >70% of the tree were surviving. See Evaluation of Tree Planting by ERC performed in Summer 2016 and included with 2016 Monitoring Letter Report.
	Wildlife and fishery habitat . Using the WDNR Rapid Assessment Methodology, wildlife and fishery habitat function of existing wetlands have been ranked as high and medium, respectively. It is expected that wetlands created by this project have low habitat values immediately after construction, and that these functions will improve to values similar to those for existing wetlands as native vegetation communities are established. The WDNR Rapid Assessment Methodology will be used to verify that this improvement in habitat functional value is indeed occurring.	Y	Wildlife and Fishery Habitat are rated high and medium, respectively. See WRAM as part of 2016 Monitoring Report completed by ERC.

	Carp Management, We anticipate that establishment of a viable fishery including predator species will provide sufficient management of carp populations. Additionally, secchi transparency measurements will be performed annually, and aquatic vegetation point-intercept surveys will be conducted in years 2 and 5. Degradation of the transparency and aquatic vegetation density along with qualitative observations of carp populations may indicate carp overpopulation. If carp populations become a nuisance, the lake could be drawn down and the carp could be physically removed.	Y	Secchi transparency measurements performed in 2017 by Richard Wedepohl and David Marshall. Aquatic vegetation point-intercept surveys conducted in 2015. Findings included with this submittal.
8.4 River and Dam	The Village intends to maintain the dam and will continue to comply with regulations regarding ownership of the dam. The dam will be operated in the same manner as in the past, and the water level of Lake Belle View will be maintained at the same elevation as in the past.	Y	See 2016 Monitoring Letter Report prepared by MARS and submitted to the USACE in May of 2017.
	It is anticipated that sediment trapping within the restored Lake Belle View will be substantially the same as for current conditions. It is difficult to determine the trapping efficiency of the existing or proposed scenarios since the dynamics of sediment transport within a relatively small impoundment, compared to the watershed size, are complex and include both deposition and scour of sediment. However, a simplified analysis utilizing the procedure for determining detention basin trapping efficiency noted in the Dane County Erosion Control and Stormwater Management Manual was conducted for the 2-yr peak discharge of 2,598 cfs. The analysis indicates that the existing impoundment, without considering re-suspension, traps the 13-micron particle while the proposed river impoundment would trap the 20-micron particle. Assuming Plano silt loam as a representative distribution of sediment particle size, the trapping efficiency of the impoundment would be minimally reduced from 51% to 44%.	Y	Components of restoration project constructed per Plan.

Section 9 - Monitoring Plan				
Monitoring Parameter:	Method:	Completed?	Frequency	Comments
Hydrology				
Lake & river stage	Stage monitoring stations to be established with continuously recording water-level probes or manually observed staff gages on Lake Belle View & Sugar River.	Y	March – November for years 1-5	See 2016 Monitoring Letter Report prepared by MARS and submitted to the USACE in May of 2017.
Berm overflow & wetland inundation	Visual observations. Estimate of flood recurrence interval for berm overtopping based on USGS gage for Sugar River at Brodhead.	Y	As events occur	Berm overtopping did not occur. See 2016 Monitoring Letter Report prepared by MARS and submitted to the USACE in May of 2017.
Wetlands				
Post-construction erosion control	Visual inspection for vegetative cover and soil erosion indicators	Y	Weekly until 70% permanent vegetation cover established	See 2016 Monitoring Letter Report prepared by MARS and submitted to the USACE in May of 2017.
Wetland functional values	WDNR Rapid Assessment Methodology for Evaluation of Wetland Functional Values	Y	July during years 1 – 5	See 2016 Monitoring Letter Report prepared by MARS and submitted to the USACE in May of 2017.
Plant species & diversity	Floristic Quality Assessment meander survey	Y	July and September during years 1 and 2, August in years 3 - 5	See 2016 Monitoring Letter Report prepared by MARS and submitted to the USACE in May of 2017.
Forest establishment	Qualitative assessment of health of trees planted in this project	N	Annual years 1 – 5; Every 5 years for years 5 - 20	Ongoing. Standard on track to being met. See Evaluation of Tree Planting by ERC performed in Summer 2016.
Lake				
Water quality	Trophic State Index method: total phosphorus, chlorophyll-a, secchi transparency	Y	Annual (late summer)	See Lake Belle View Monitoring Progress Report included with this submittal.
	Vertical profiles of dissolved oxygen, temperature, pH & specific conductance	Y	Semi-annual (late summer & late winter)	See Lake Belle View Monitoring Progress Report included with this submittal.
Aquatic vegetation	Point-intercept survey	Y	Years 2 & 5	See Lake Belle View Monitoring Progress Report included with this submittal.
Fish	Mini-boom shocking surveys	Y	Years 2 & 5	See Lake Belle View Monitoring Progress Report included with this submittal.
	Creel surveys (angler interviews)	Y	Annual: Years 3 - 5	See Lake Belle View Monitoring Progress Report included with this submittal.

Lake Belle View Monitoring Progress Report

2014 Lake Drawdown and Commercial Seining Operation

Prepared by David W. Marshall and Richard Wedepohl

September 2017

Eutrophic conditions in Lake Belle View continued through the 2017 growing season. Trophic State Index values in Figure 1 demonstrate that a significant water quality change did not occur after the carp removal in 2014. These conditions indicated that common carp numbers in the lake remain high enough to maintain the turbid conditions. However, lake users reported that lake conditions are generally favorable since Cyanobacteria blooms have been minimal, likely due to carp generated turbidity. In spring 2016, 193 common carp were collected as part of a one-hour miniboom shocking run (193/hour). Results indicate that a high density of common carp remain in the lake. In Figure 2, turbidity measurements are typically high due to both suspended sediment and phytoplankton.

Common carp (*Cyprinus carpio*) remains one of the most widespread and destructive exotic species in North America. It is tolerant of environmental degradation and its aggressive benthic feeding behavior can further degrade water quality and habitat for native fish populations. Controlling the destructive effects of common carp is a significant challenge due to a combination of factors including fast growth, large body size, prolific egg production and long lifespan. As part of a Wisconsin Department of Natural Resources (WDNR) Aquatic Invasive Early Detection and Response grant, the Village of Belle View, through a cooperative agreement with WDNR, hired a commercial fisherman to remove nuisance common carp in Lake Belle View. The carp removal effort was established for eradication and disposal and not for commercial sale. To improve seining catch rates, the lake was drawn down in the spring. Over a three-day harvest/channel herding effort, 2,200 lbs. of carp were removed from the lake. Consultants Richard Wedepohl and Dave Marshall participated in the commercial harvest and conducted water quality/fish shocking as monitoring efforts to assess the effectiveness of the eradication. While water quality monitoring continued, no commercial carp removal was conducted in 2015.

A partial winterkill occurred in early 2014 and the resulting environmental stress had potential to benefit common carp at the expense of native fish populations. Deep hole dissolved oxygen profiles in Figure 3 demonstrate low dissolved oxygen levels measured during the winters of 2014 and 2015. The 2014 winterkill occurred due to very low dissolved oxygen concentrations that dropped below 1 mg/l throughout the water column. However, the loss of walleyes and some other large gamefish 2014 did not affect high numbers of panfish that may have overwintered in spring seeps elsewhere in the lake. Figures 4 displays nearshore fish shocking surveys in 2014 and 2015. In September 2014, two young of year common carp were collected and demonstrated recruitment for the first time in the lake. As part of citizen outreach and efforts to encourage carp removal from the lake, carp fishing contests were organized as part of the 2014 and 2015 Lake Fest events. Results demonstrated that common carp were still abundant in the lake following commercial harvests and additional carp removal efforts should continue. Figure 5 displays the length frequency distribution from the carp fishing contests.

Comparing the 2014 and 2015 data, carp recruitment occurred after the lake was constructed and some growth had occurred in 2015. In Figure 6, the catch and harvest rates did not change significantly comparing the 2014 and 2015 contests. Vertical temperature and conductivity profiles appear in Figures 7and 8. In addition to relatively high phosphorus and chlorophyll concentrations in the lake, chloride was measured in 2015 and high concentrations were found; 55.4 mg/l (June 16, 2015), 50.4 mg/l (July 15, 2015) and 67.3 mg/l (August 11, 2015). These high concentrations reflect the urbanized watershed and impervious surfaces where road salt is applied

Figure 1: Lake Belle View Trophic State Index 2011 – 2015

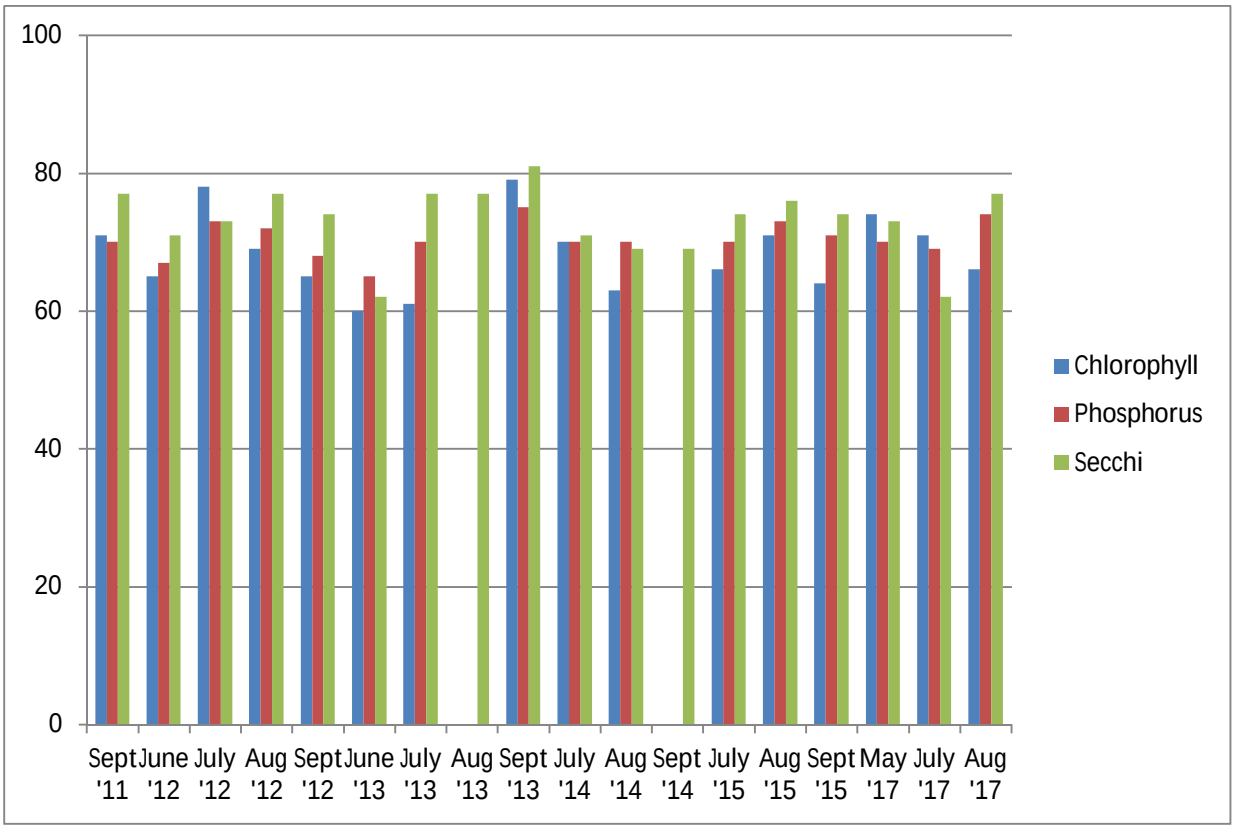


Figure 2: Lake Belle View Turbidity Levels 2011 – 15

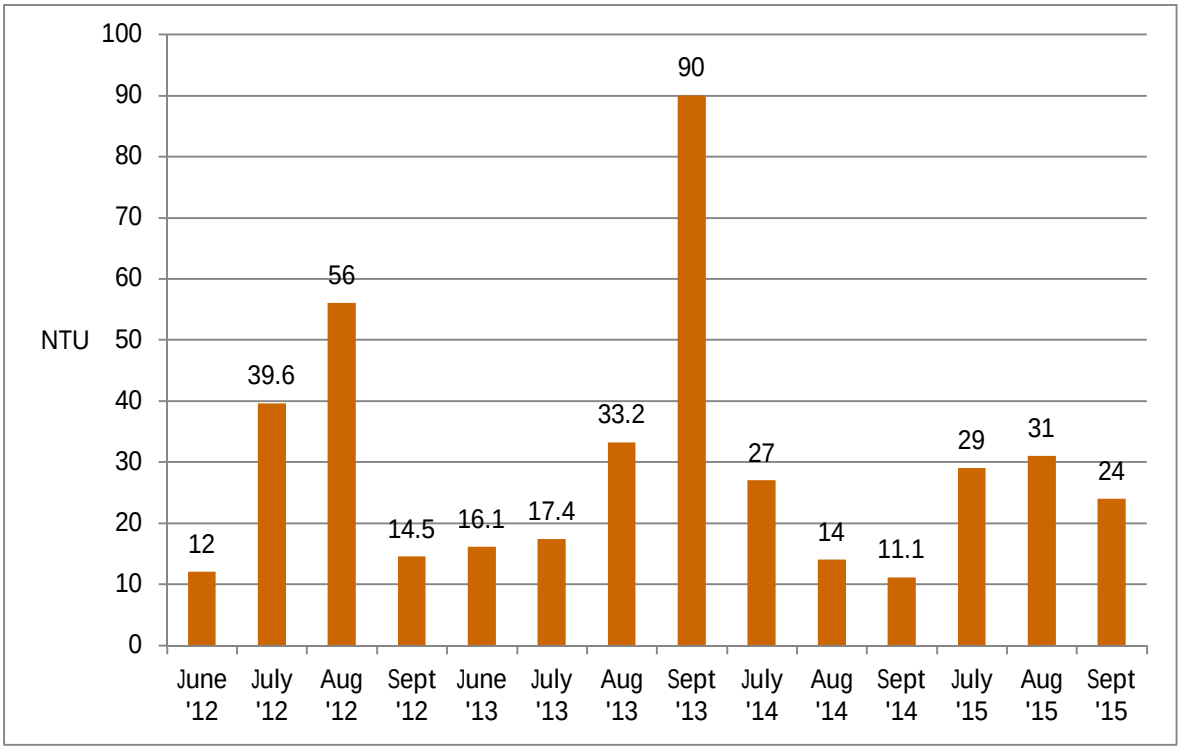
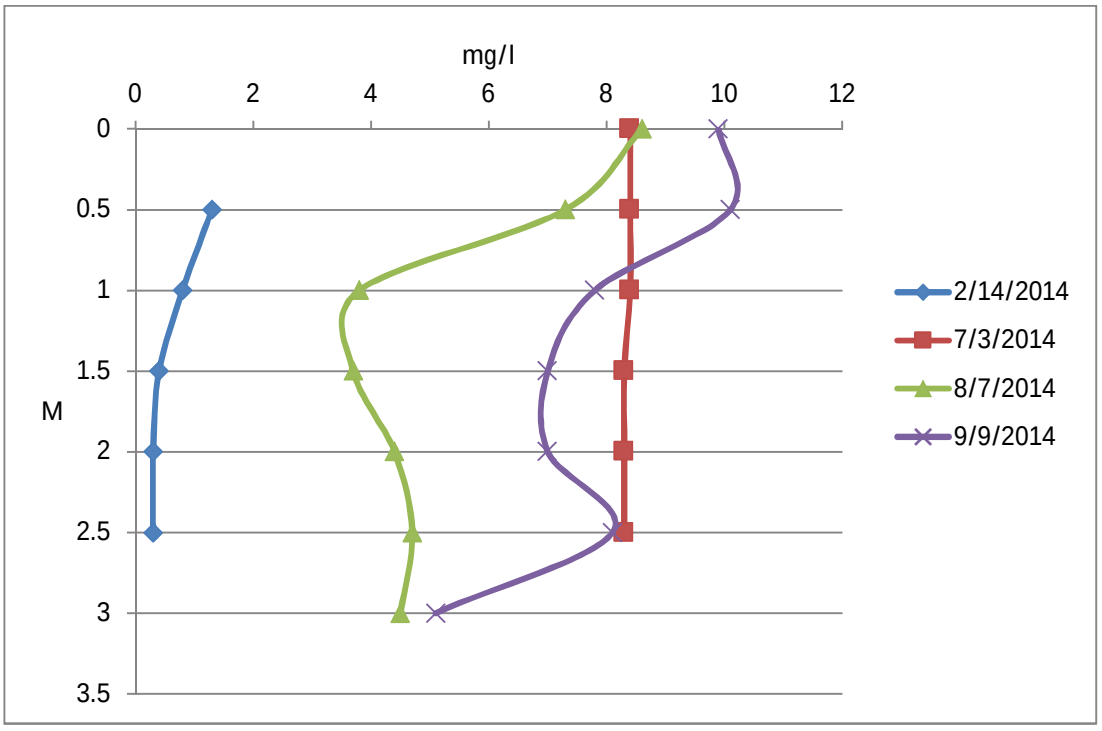
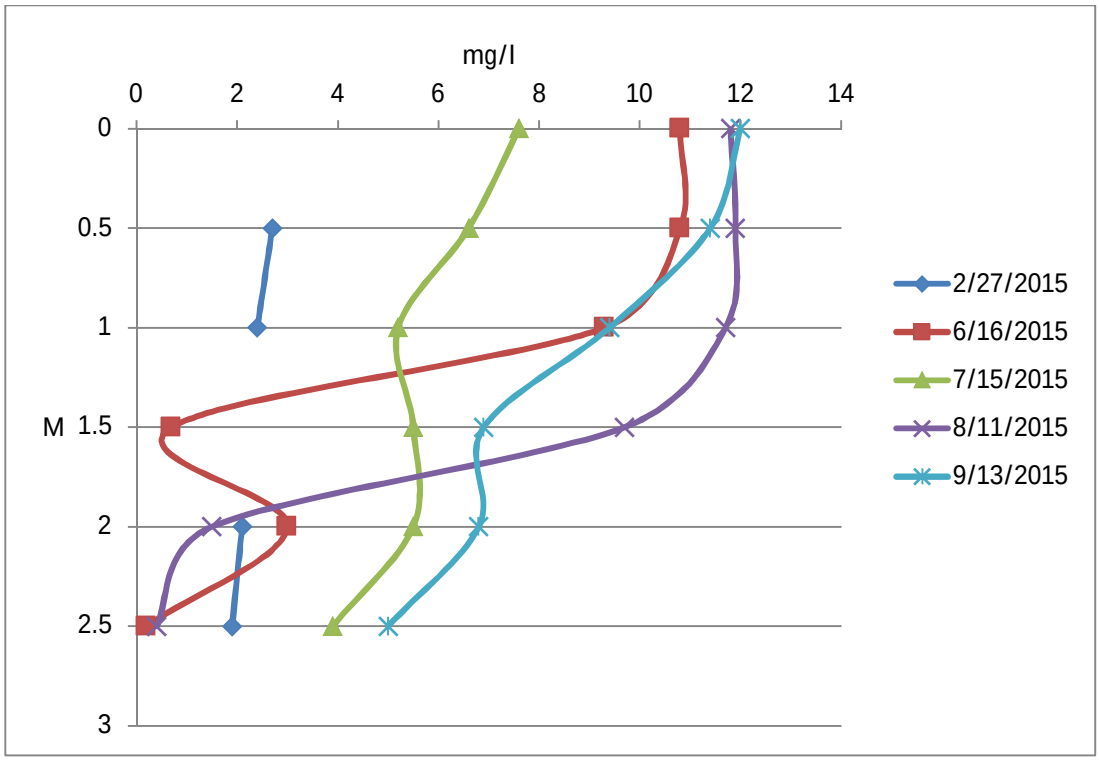


Figure 3: 2014, 2015 and 2017 Lake Belle View Dissolved Oxygen Profiles

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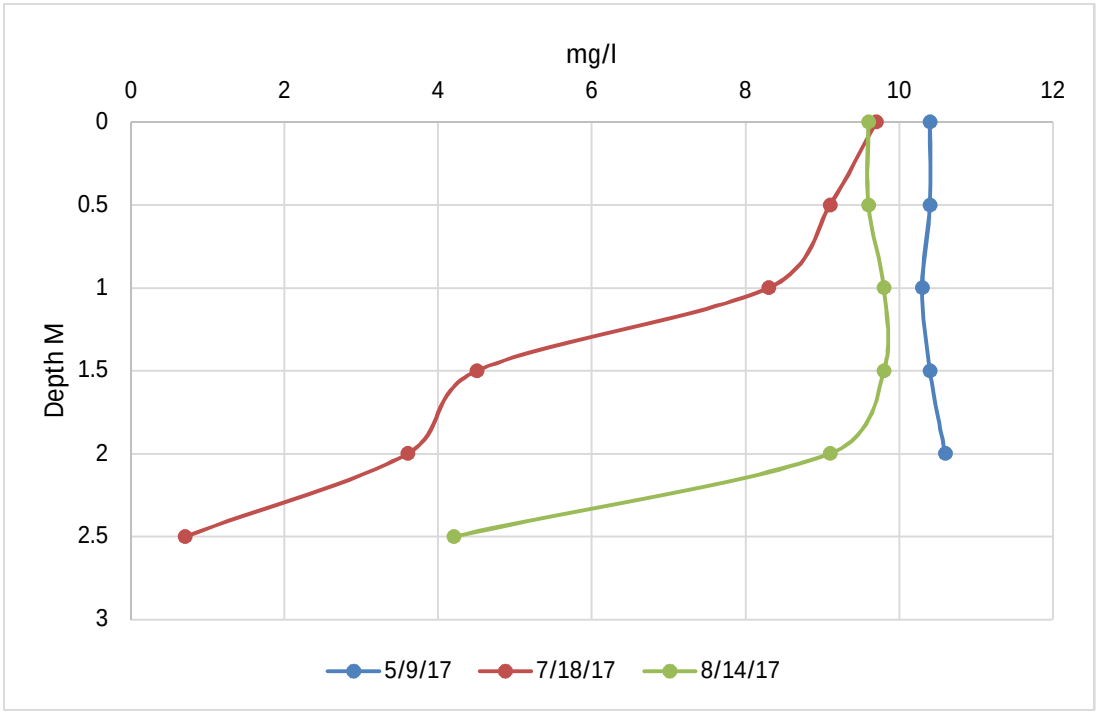
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Figure 4: 2014 and 2015 Nearshore Fish Shocking Survey Results

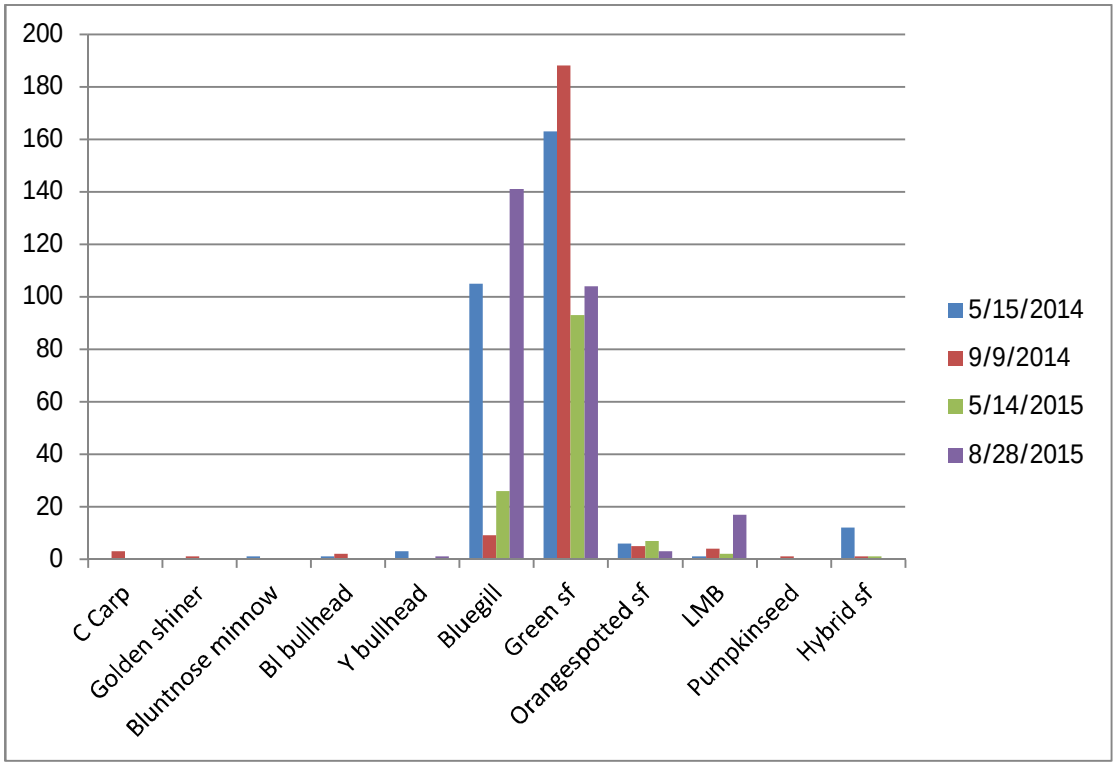


Figure 5: "Catch Me if You Can" Carp Contest Results

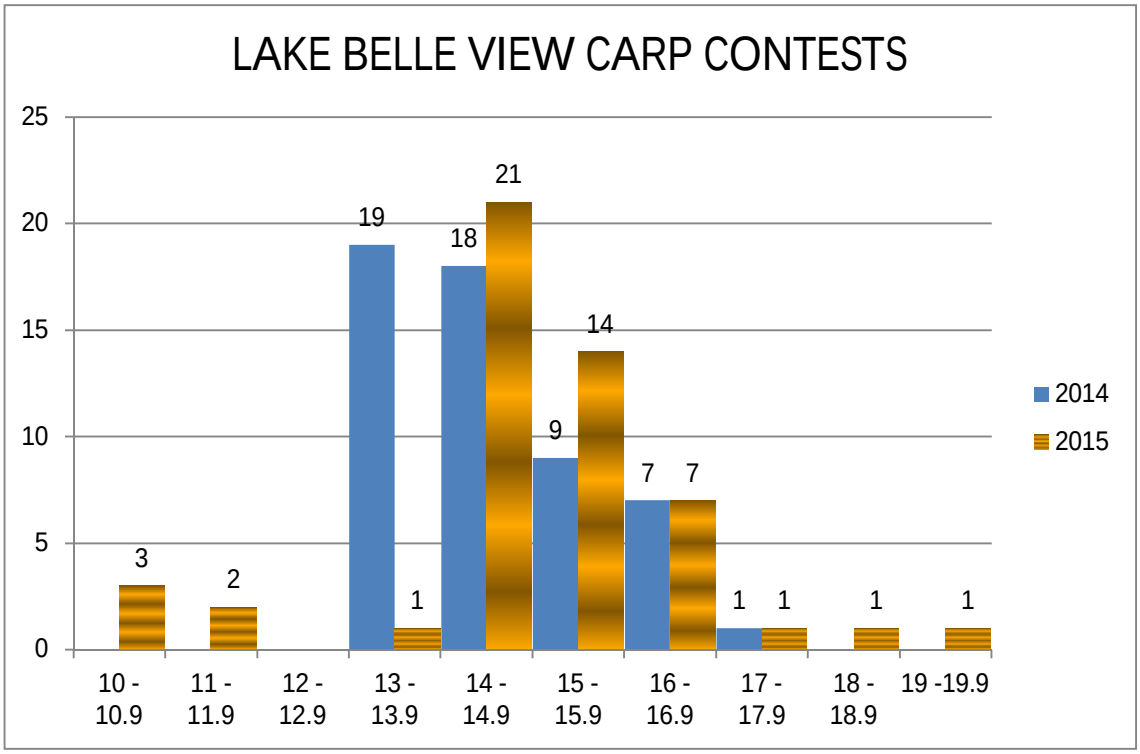
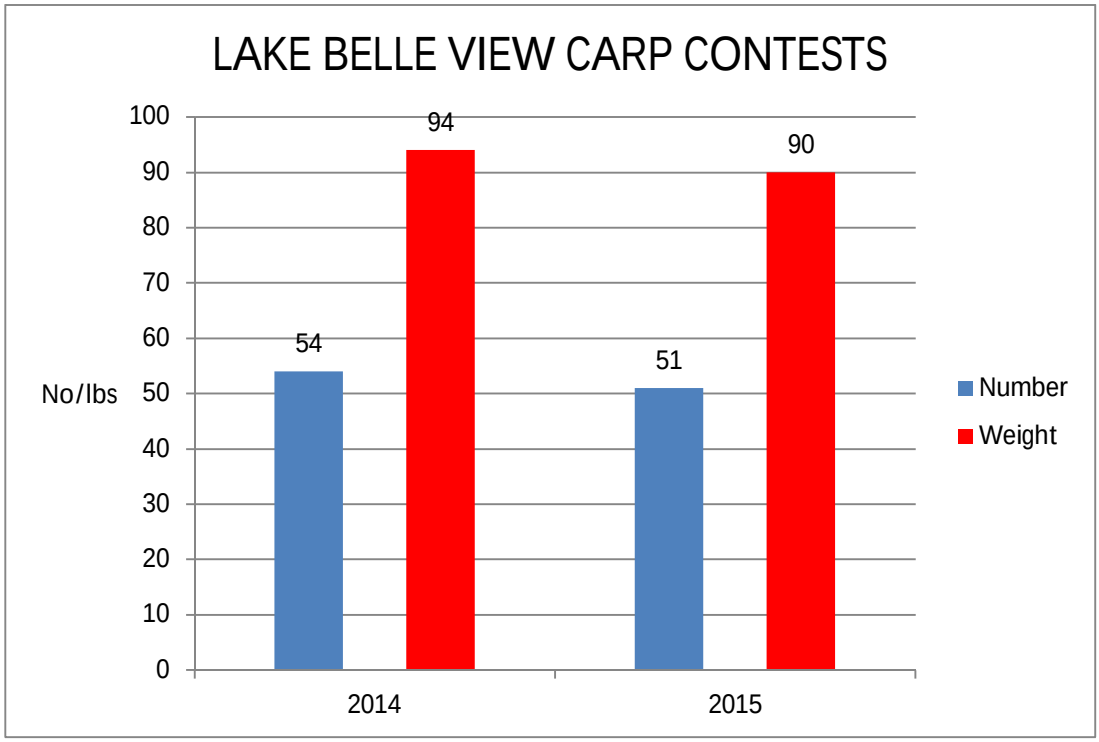
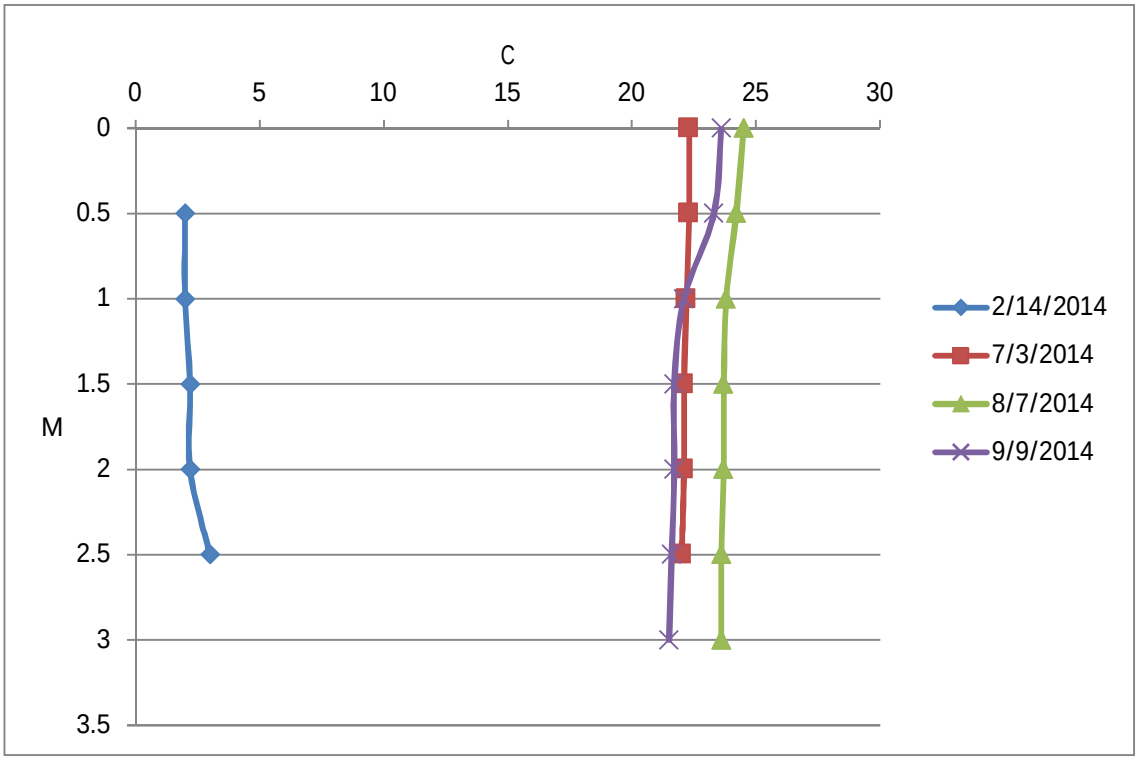


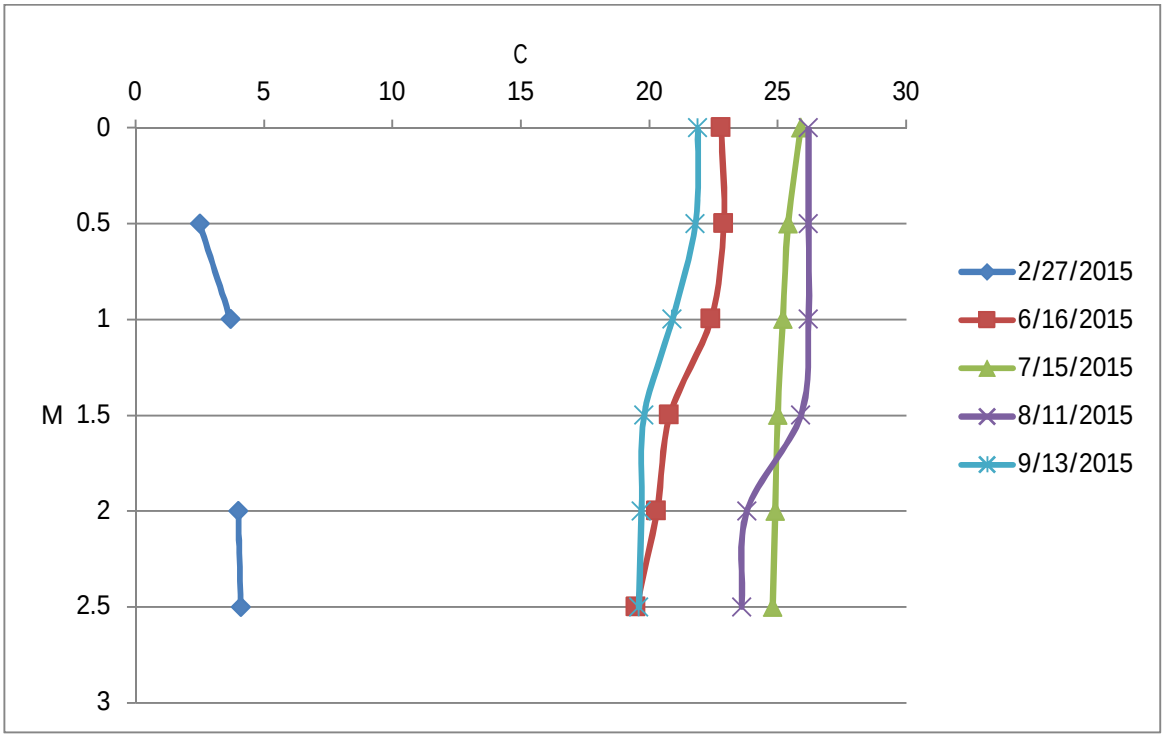
Figure 6: Carp Contest Harvest Data



Catch Me if You Can Tournament Winners

Figure 7: 2014, 2015 and 2017 Lake Belle View Temperature Profiles





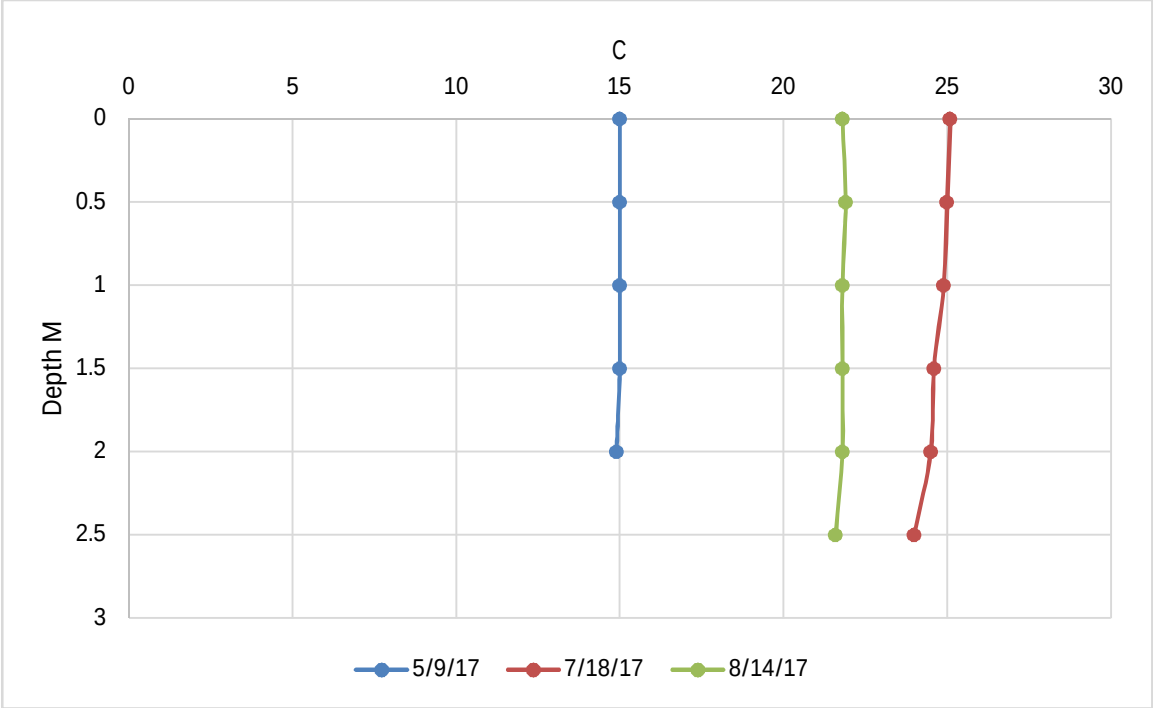
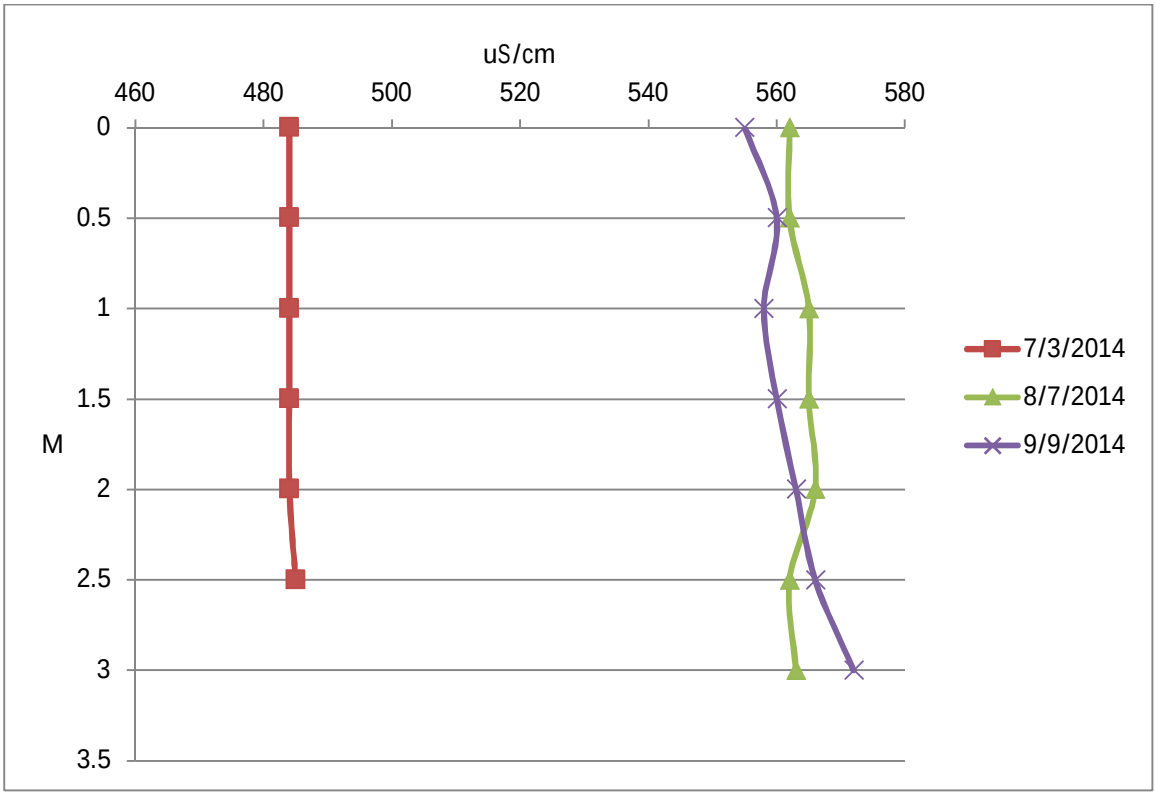
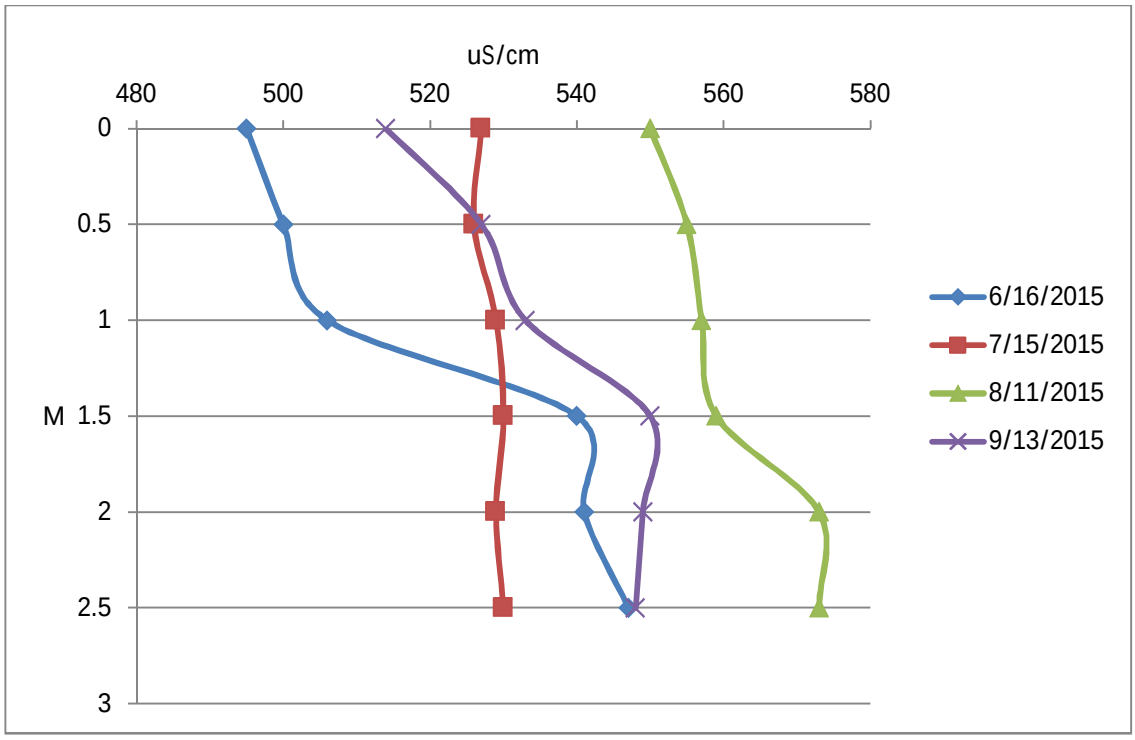
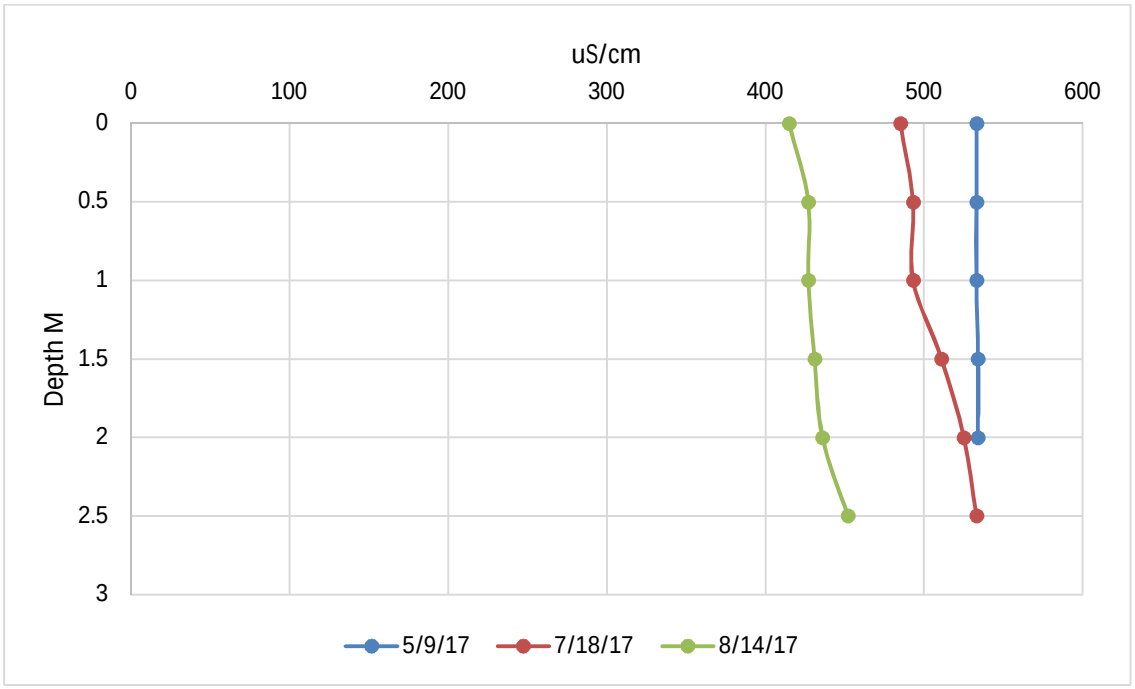


Figure 8: 2014 and 2015 Lake Belle View Specific Conductance Levels







Establishing diverse submersed and floating leaf aquatic plants was identified as an important goal of the oxbow lake restoration. However, the relatively short initial drawdown and common carp refuge undermined that effort. On June 16, 2015 we conducted a modified point intercept aquatic plant survey based on an earlier map of the old millpond. We sampled a subset of survey points that lie within the new lake boundaries but many other points now

occur in the much reduced millpond, separation berm and newly expanded floodplain forest (Figure 9). Our data demonstrate the scarcity of both submersed and floating leaf pondweeds even though numerous white water lily and wild celery propagules were planted in the lake. Table 1 summarizes the aquatic plant survey results. Aquatic plant species collected or observed during the survey included coontail, Sago pondweed, curly-leaf pondweed, white water lily, small duckweed, large duckweed and long-leaf pondweed.

Figure 9: Lake Belle View (former millpond) Point Intercept Map and Sampled Areas Highlighted

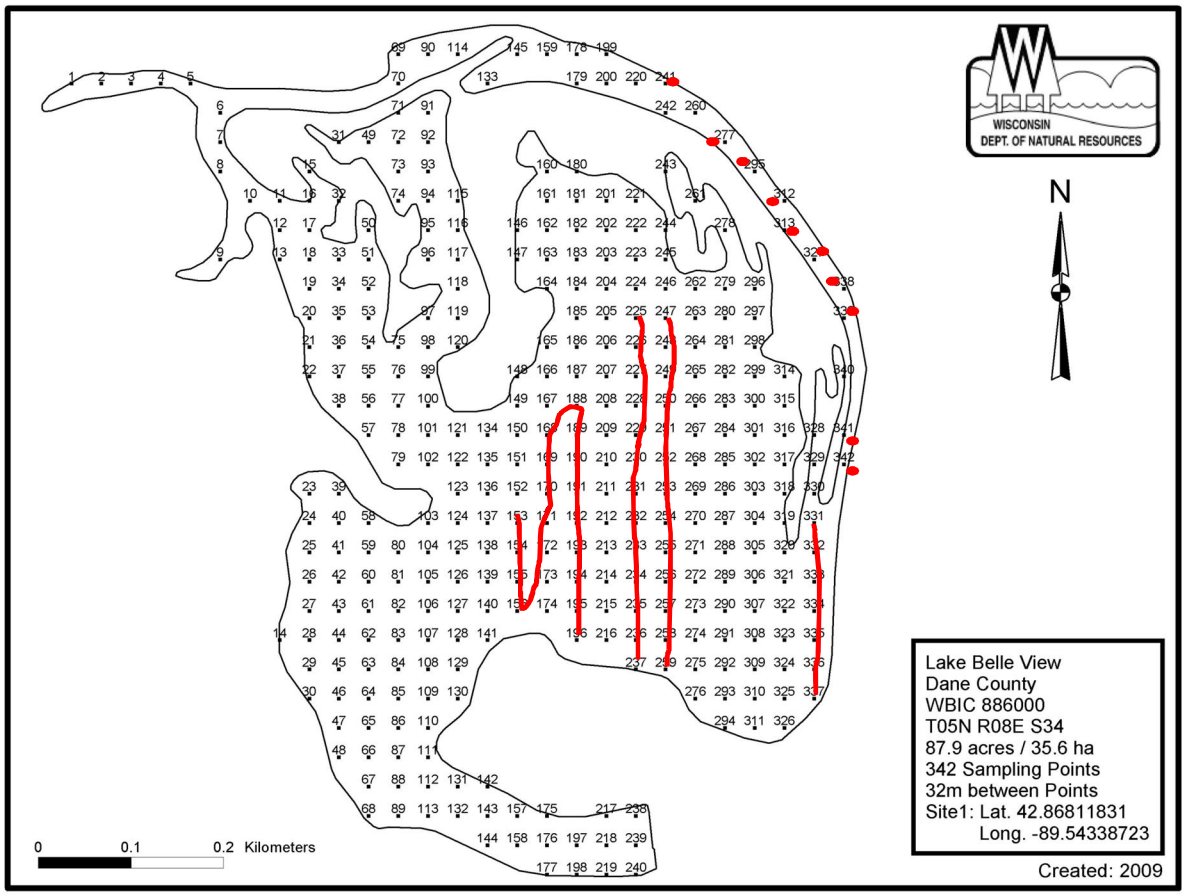


Table 1: Point Intercept Statistics

INDIVIDUAL SPECIES STATS:	Tot. Veg.
Frequency of occurrence within vegetated areas (%)	
Frequency of occurrence at sites shallower than maximum depth of plants	
Relative Frequency (%)	
Relative Frequency (squared)	0.43
Number of sites where species found	
Average Rake Fullness	
#visual sightings	
present (visual or collected)	
SUMMARY STATS:	
Total number of points sampled	**58**
Total number of sites with vegetation	**7**
Total number of sites shallower than maximum depth of plants	**50**
Frequency of occurrence at sites shallower than maximum depth of plants	**14.00**
Simpson Diversity Index	**0.57**
Maximum depth of plants (ft)	**8.50**
Number of sites sampled using rake on Rope (R)	**0**
Number of sites sampled using rake on Pole (P)	**0**
Average number of all species per site (shallower than max depth)	**0.14**
Average number of all species per site (veg. sites only)	**1.00**
Average number of native species per site (shallower than max depth)	**0.06**
Average number of native species per site (veg. sites only)	**1.00**
Species Richness	**3**
Species Richness (including visuals)	**7**

Species	Sites Found	Rake Fullness
Coontail (*Ceratophyllum demersum*)	4	1
Sago pondweed (*Struckenia pectinatus*)	3	1
Curly-leaf pondweed (*Potomogeton crispus*)	3	Visual
Long-leaf pondweed (*Potomogeton nodusus*)	1	Visual
White water lily (*Nymphaea odorata*)	1	Visual
Small duckweed (*Lemna minor*)	11	Visual
Large duckweed (*Spirodela polyrhiza*)	2	Visual
Filamentous algae	4	1

Management Needs

Given the limited commercial common carp removal and apparent strength of the population, a meeting was held on October 15, 2015 to discuss future management options. Below is a summary of the meeting between April Little, Richard Wedepohl, David Rowe, Kurt Welke (meeting notes preparer) and Dave Marshall. The AIS grant has since been amended to reflect the changes summarized below.

Notes- Meeting of Lake BelleView partners

October 15, 2015

In Attendance:

Kurt Welke, David Rowe WDNR

David Marshall, Richard Wedepohl, consultants to Village

April Little Village administrator

We discussed the proposal by The Village and the consultant to use remaining AIS grant funding (balance approximately $2000) to fund a electrofishing population estimate of carp using the Bajer-Sorenson method of Catch-per-unit-effort.

Our underlying problem is-was that contract fishing has been ineffective at reducing adult carp numbers. Efforts to attract a fisherman have been unsuccessful.

David re-visited the lake management plan and the elements therein :

- Enacting of a NR20.35 bag and size limit change on largemouth bass from 14" X 5 fish to 18" X 1 fish. This became effective in august 2015.
- Stocking of largemouth bass, Northern Pike and bluegill (in addition to field transfers) in order to provide predatory pressure on carp recruitment. Stockings have occurred in both 2014 and 2015.
- DNR intention to perform a spring (May) 2016 electrofishing survey to provide a carp CPUE metric and an idea of panfish abundance and size structure: in relation to goals established in the lake management plan.

We also discussed other tools that may be available. These were:

1. Supplemental stocking of channel catfish fingerlings at a rate of 10/acre. The Village may submit a stocking permit by on-line application: https://cida.usgs.gov/wdnr/apex/f?p=244:1:

Raw Field Data

Temp C				
	2/14/2014	7/3/2014	8/7/2014	9/9/2014
0		22.3	24.5	23.6
0.5	2	22.3	24.2	23.3
1	2	22.2	23.8	22.1
1.5	2.2	22.1	23.7	21.7
2	2.2	22.1	23.7	21.7
2.5	3	22	23.6	21.6
3			23.6	21.5

Temp C					
	2/27/2015	6/16/2015	7/15/2015	8/11/2015	9/13/2015
0		22.8	25.9	26.2	21.9
0.5	2.5	22.9	25.4	26.2	21.8
1	3.7	22.4	25.2	26.2	20.9
1.5		20.8	25	25.9	19.8
2	4	20.3	24.9	23.8	19.7
2.5	4.1	19.5	24.8	23.6	19.6

Temp	5/9/17	7/18/17	8/14/17
0	15	25.1	21.8
0.5	15	25	21.9
1	15	24.9	21.8
1.5	15	24.6	21.8
2	14.9	24.5	21.8
2.5		24	21.6

D.O. mg/l				
	2/14/2014	7/3/2014	8/7/2014	9/9/2014
0		8.4	8.6	9.9
0.5	1.3	8.4	7.3	10.1
1	0.8	8.4	3.8	7.8
1.5	0.4	8.3	3.7	7
2	0.3	8.3	4.4	7
2.5	0.3	8.3	4.7	8.1
3			4.5	5.1

D. O. mg/l					
	2/27/2015	6/16/2015	7/15/2015	8/11/2015	9/13/2015
0		10.8	7.6	11.8	12
0.5	2.7	10.8	6.6	11.9	11.4
1	2.4	9.3	5.2	11.7	9.4
1.5		0.7	5.5	9.7	6.9
2	2.1	3	5.5	1.5	6.8
2.5	1.9	0.2	3.9	0.4	5

D.O.	5/9/17	7/18/17	8/14/17
0	10.4	9.7	9.6
0.5	10.4	9.1	9.6
1	10.3	8.3	9.8
1.5	10.4	4.5	9.8
2	10.6	3.6	9.1
2.5		0.7	4.2

Sp. Cond uS/cm			
	7/3/2014	8/7/2014	9/9/2014
0	484	562	555
0.5	484	562	560
1	484	565	558
1.5	484	565	560
2	484	566	563
2.5	485	562	566
3		563	572

Sp Cond uS/cm				
	6/16/2015	7/15/2015	8/11/2015	9/13/2015
0	495	527	550	514
0.5	500	526	555	527
1	506	529	557	533
1.5	540	530	559	550
2	541	529	573	549
2.5	547	530	573	548

Sp. Cond	5/9/17	7/18/17	8/14/17
0	533	485	415
0.5	533	493	427
1	533	493	427
1.5	534	511	431
2	534	525	436
2.5		533	452

Secchi	ft.
7/3/2014	1.5
8/7/2014	1.8
9/9/2014	1.8
6/16/2015	2
7/15/2015	1.3
8/11/2015	1.1
9/13/2015	1.2

Secchi	Ft.
5/9/2017	1.2
7/18/2017	1.5
8/14/2017	2.2