

## **City Council Meeting**

March 16, 2020 6:00 p.m.

Cadillac Municipal Complex Council Chambers 200 N. Lake St. Cadillac, MI 49601



March 16, 2020 City Council Meeting Agenda 6 p.m. at City Hall – 200 N. Lake St. – Cadillac, MI 49601

### We are fully present

CALL TO ORDER
PLEDGE OF ALLEGIANCE
ROLL CALL

- I. APPROVAL OF AGENDA
- II. PUBLIC COMMENTS

It is requested that comment time be limited to three (3) minutes.

### III. CONSENT AGENDA

All items listed on the consent agenda are considered routine and will be enacted by one motion with roll call vote. There will be no separate discussion of these items unless a Council Member so requests it, in which event the items will be removed from the consent agenda and discussed separately.

A. Minutes from the regular meeting held on March 2, 2020. Support Document III-A

#### IV. COMMUNITY SPOTLIGHT

A. Presentation by Carrie Thompson, Executive Director CWTA.

### V. COMMUNICATIONS

- A. US Title Series Hydroplane Race Support Document V-A
- B. Easter Egg Hunt Support Document V-B

### Cadillac City Council Agenda

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- C. Earth Day Celebration Support Document V-C
- D. National Library Week Support Document V-D
- E. Sexual Assault Awareness Month Support Document V-E
- F. Pinwheels for Prevention Support Document V-F
- G. Cadillac Area Symphony Orchestra Support Document V-G

### VI. CITY MANAGER'S REPORT

- A. COVID-19 Virus Update
- B. Restorative Lake Sciences 2019 Lake Cadillac Report Support Document VI-B
- C. Recommendation regarding 2020-2021 Road Salt. Support Document VI-C

### VII. MINUTES AND REPORTS OF BOARDS AND COMMISSIONS

A. Cadillac-Wexford Airport Authority Support Document VII-A

### VIII. PUBLIC COMMENTS

It is requested that comment time be limited to three (3) minutes.

### IX. GOOD OF THE ORDER

### X. CLOSED SESSION

Adjourn to closed session to discuss a written confidential legal opinion with the City Attorney.

#### XI. ADJOURNMENT

### **Cadillac City Council Agenda**

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### Core Values (R.I.T.E.)

Respect
Integrity
Trust
Excellence

### **Guiding Behaviors**

We support each other in serving our community
We communicate openly, honestly, respectfully, and directly
We are fully present
We are all accountable
We trust and assume goodness in intentions
We are continuous learners

### **CITY COUNCIL MEETING MINUTES**

### March 2, 2020

Cadillac City Hall – 200 N. Lake St. - Cadillac, Michigan 49601

### CALL TO ORDER

Mayor Filkins called the City Council meeting to order at approximately 6:00 pm.

### PLEDGE OF ALLEGIANCE

#### ROLL CALL

Council Present: Elenbaas, Schippers, King, Mayor Filkins

Council Absent: Engels

Staff Present: Peccia, Roberts, Wasson

### APPROVAL OF AGENDA

#### 2020-033 Approve agenda as presented.

Motion was made by King and supported by Elenbaas to approve the agenda as presented.

Motion unanimously approved.

### PUBLIC COMMENTS

Charles LaBar questioned why some recyclable materials, like glass, are not accepted by Ms. Green.

### **CONSENT AGENDA**

#### 2020-034 Approve consent agenda as presented.

Motion was made by Schippers and supported by King to approve the consent agenda as presented.

Motion unanimously approved.

#### COMMUNICATIONS

#### A. Sexual Assault Awareness Month

#### 2020-035 Approve ribbons for Sexual Assault Awareness Month.

Motion was made by Schippers and supported by Elenbaas to approve the request from Oasis to place ribbons on the light poles on Mitchell Street from Cass Street to Spruce Street subject to the conditions noted.

Motion unanimously approved.

#### ADOPTION OF ORDINANCES AND RESOLUTIONS

A. Adopt resolution regarding Local Government Approval for New Off-Premises Tasting Room License.

Peccia stated the Cadillac Tuxedo & Cadillac Winery Tasting Room located at 209 N. Mitchell Street is in the process of evolving into a tasting room for Gypsy Vodka.

Ashley Osowski stated Gypsy Vodka – High Five Spirits would like to open a tasting room in Cadillac. She briefly described some of the products that will be offered.

2020-036 Adopt resolution regarding Local Government Approval for New Off-Premises Tasting Room License.

Motion was made by King and supported by Schippers to adopt the resolution regarding Local Government Approval for New Off-Premises Tasting Room License.

Motion unanimously approved.

#### PUBLIC COMMENTS

There were no public comments.

### GOOD OF THE ORDER

Peccia encouraged individuals who send letters to City Council or City staff to provide a method to respond, such as a name, phone number, or email address. He noted submitting anonymous letters does not provide a means for anyone to respond.

Schippers briefly discussed a recent event hosted by the Michigan Women's Commission to discuss gender equity issues. She noted Wexford County was represented by a diverse group of women, including herself, a City employee, two members of the Mayor's Youth Council, and other community members. She stated it was a wonderful conversation that provided an opportunity to have a voice in defining policy moving forward. She noted Governor Whitmer spoke at the event.

Elenbaas stated the Clock Tower is currently being stored at the City Garage. He noted there have been a few ideas discussed about where it should be placed in the future such as the City dock and the White Pine Trailhead. He mentioned a few other possible locations such as the Veterans Walkway and Maple Hill Cemetery. He stated he would like to see it placed in a visible location in the near future.

Mayor Filkins stated it will most likely be placed at the White Pine Trailhead which is a very visible location.

#### <u>ADJOURNMENT</u>

Respectfully submitted,

Carla J. Filkins, Mayor

Sandra L. Wasson, City Clerk





### **Request Planning Guide**

This form must be completed and return to the City 60 days before an event. Additionally a representative for the event must meet with City Event Team to verify all details for the event before going to City Council for approval.

Failure to comply will result in a denial of your event. Please call (231) 775-0181 x 120 if you have questions.

Applicant Name (Print) Ray BRANTORD Contact Address					
Contact Email					
Sponsoring Organization <u>VSTITLE SERIES</u> Revivate Non-Profit					
Purpose of Event Hyproplane RACING Approx# of Attendees 1,000-3000 per day					
Beginning Date: 6 / 18 / 20 Ending Date: 6 / 21/ 20 Reoccurring: YES NO					
1st Day 18 - ADANG Set-up 1: AM/PM Start : AM/PM End : AM/PM Clean-up : AM/PM					
2nd Day 19 785T Set-up 8: AM/PM Start 11: AM/PM End 5: AM/PM Clean-up : AM/PM					
3rd Day 2 v Rock Set-up : AM/PM Start 11: AM/PM End 5: AM/PM Clean-up : AM/PM					
4th Day 21 Race Set-up : AM/PM Start 12: AM/PM End : AM/PM Clean-up 4: AM/PM					
Please answer the following questions:					
YES NO Will you be requesting permission to close any streets or parking lots?					
YES NO Will you be requesting permission to display any off site signage?					
YESNO Will you be requesting permission to display a banner over Mitchell Street?  YES \( \sum \) NO Will you be requesting permission to reserve any of the City of Cadillac facilities					
Please Circle					
Market at Cadillac Commons Rotary Pavilion City Park Cadillac Commons Plaza					
YESNO Will you be requesting permission to have a parade? YES NO Will you be requesting permission to hold any races? YES NO Will you be requesting permission to serve alcoholic beverages? YES NO Will your event include use of generators, food trucks, grills, fireworks display, or a tent/membrane					
structure?					
If you answered <u>YES</u> to any of the above questions, additional form(s) must be completed for each one. All forms must be completely filled out and all information provided before requests will be brought to City Council for approval.					
Forms can be mailed or delivered to the above address or emailed to: javila@cadillac-mi.net					

All events require liability insurance: Required Min. general aggregate amount of \$1,000,000, naming the City of Cadillac as Certificate Holder and as additionally insured



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Today's Date	2	- 6	1-60	)

**City Received Date** 

MUST BE OFFICIALLY CITY DATE STAMP

### **All City Parks Request Form**

Reason for Request HYDROPLANE LACE ON L	AKE CADILLAC
Organization US TITLE SERIES	Contact Person Kay BRANFIND
Contact Email_	
Date Times Towards	6-21-20
City Pa	
<ul> <li>□ Downtown "Fountain" City Park</li> <li>□ Cadillac Commons Plaza</li> <li>□ Sound Garden</li> <li>□ The Bridge</li> <li>□ Naval Reserve Flower Open Space</li> <li>□ Tree Zoo Gazebo</li> </ul>	CABILLAC LAKEFRONT PARKING AD
City of Cadillac	Guidelines:
Please read the following and initial to acknowledge you All Parks are for public use  The City does not provide any tents, tables, chairs, rugs. The fountain may not be operating due to equipment by I understand and agree to these requirements and under Not all parks have space for tents, chairs etc.  If needing speakers or microphone fee may be required.	, extension cords etc reak downs or weather conditions such as wind erstand if these are not met the request will be denied.
Form must be emailed, mailed or brought to:  Cadillac City Hall  Attn: Public Works Department-Events  200 N. Lake Street  Cadillac, MI 49601	
Print Name Ray BRAFORD Signature	200 Date//



Stee Described Date	
City Received Date	
	TOTAL PROPERTY

### **Street & Parking Lot Closure Request Form**

Please fill out a separate form for each date

	Contact Email_	
Date: / /	Street Closures	
Street Name_ '	Beginning Location	Ending Location
	Beginning Time:AM/PM	Ending Time:AM/PM
Street Name	Beginning Location	Ending Location
	Beginning Time:AM/PM	Ending Time:AM/PM
Street Name	Beginning Location	Ending Location
Beginning Time:AM/PM		
Street Name	Beginning Location	Ending Location
	Beginning Time:AM/PM	a Maria (1)
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derstand and agree to the	ered to the above address or emailed to: just requirements & understand if these are	



City Received Date	

### Street & Parking Lot Closure Request Form

Please fill out a separate form for each date

	Contact Email
Date: 6 /19/2-0	Street Closures
Street Name CHEST	Beginning Location N. LAKE ST. Ending Location TON ST. Beginning Time 2:60 AM/PM Ending Time 6:60 AM/PM
Street Name	Beginning Time:AM/PM Ending Time:AW/TW
Street Name	Ending Location
Street Name	Beginning Location Ending Location Beginning Time:AM/PM Ending Time:AM/PM
Date 6 /19 /27	Parking Lot Closures
Lot Location LAKE	PRODUCT PROKStreet CHESTNET Nearest Cross Street N. LAKE  REAL Beginning Time 12:00 AM PM Ending Time 13:00 AM
Lot Location OVER	Street CHESTING Nearest Cross Street N. LAKE ST DSS FROM Beginning Time 12: 2 AM/PM Ending Time 12: 45 AM
Lot Location	Street Nearest Cross Street Beginning Time:AM/PM Ending Time:AN

Form must be mailed or delivered to the above address or emailed to: <a href="mailed-to:javila@cadillac-mi.net">javila@cadillac-mi.net</a> (No Faxes accepted)

I understand and agree to these requirements & understand if these are not met the request will be denied.

Print Name RAN BANTON Signature Signature Date 2/27/20



9	
ty Received Date	

### Street & Parking Lot Closure Request Form

Please fill out a separate form for each date

t Person Ray P	Contact Email	)
Date: 6 /20/20	Street Closures	<u> </u>
Street Name CHESTA	Beginning Location V. LAKEST Ending Location  Beginning Time 2: AMYPM Ending Time	
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Lot Location OVER	Street CHESTING Nearest Cross St DSS FROM Beginning Time 12: MM/PM Ending	reet N. LAKE ST g Time 12:AM/
Lot Location	Street Nearest Cross St  Beginning Time:AM/PM Ending	reet g Time:AM/

Form must be mailed or delivered to the above address or emailed to: <a href="mailto:javila@cadillac-mi.net">javila@cadillac-mi.net</a> (No Faxes accepted)

I understand and agree to these requirements & understand if these are not met the request will be denied.

Print Name Ray Blathan Signature Signature Date 2/27/20



City Received Date		
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### Street & Parking Lot Closure Request Form

Please fill out a separate form for each date

	DPLANS RACS ON LARE CADILLAC
act Person Kay B	Contact Email_
Date: 6 /21 / 20	Street Closures
Street Name CHEST DI	Beginning Time Significant Ending Time District
Street Name	Beginning Location Ending Location Beginning Time:AM/PM Ending Time:AM/PM
Street Name	Beginning Location Ending Location Beginning Time:AM/PM Ending Time:AM/PM
Street Name	Beginning Location Ending Location Beginning Time:AM/PM Ending Time:AM/PM
Date 6 / 21/20	Parking Lot Closures
Lot Location LAKE	PAMP Beginning Time 12: 4M/PM Ending Time 9: 4 AM/PM
Lot Location OVER	Street LHESTING Nearest Cross Street N. LAKEST.  S FROM Beginning Time 12: WAM/PM Ending Time 9: WAM/P
Lot Location	Street Nearest Cross Street Nearest Cross Street AM/FM Ending Time:AM/F

Form must be mailed or delivered to the above address or emailed to: <a href="mailed-invalence-mi.net"><u>javila@cadillac-mi.net</u></a> (No Faxes accepted)

I understand and agree to these requirements & understand if these are not met the request will be denied.

Print Name Ray BRANCOLN Signature July Control Date 2/27/20

### **Event Proposal**

For

### **Father's Day Hydrofest**

June 19-21 2020

By



Proposed by Ray Bradford (Club member/Organizer)



### Dear Cadillac City council,

My name is Ray Bradford and I am reaching out to have an event on Lake Cadillac. I am part of an organization called US Title Series. We are a professional Outboard Hydroplane racing organization that holds races all over the United States. In the past month or so I have been reaching out to many people in the area about an event like this and the response has been overwhelming. I also have had 2 meeting with city officials about this event and believe this would be a great show for Cadillac and the surrounding areas.

The US Title Series puts on one of the best shows in all of boat racing. This event will bring thousands of people downtown along the lakeshore throughout the weekend. In this packet you will be provided detailed information about our program and how the event will look like with our partners and with the city of Cadillac.

Thank you,

Ray Bradford

#### Who we are....

### **Our History**

The US Title Series, founded in 1982, is recognized as the premier PRO outboard racing series in the United States. The United States Title Series' guiding vision is to establish a class of outboard racing competitions between the best Professional Outboard Racing teams that boat racing has to offer; promote the sport of powerboat racing by using any and all means available; and develop a series of outboard racing competitions across the country, putting the sport on a national level as any other professional sport.

### The Program

The Title Series is a great addition to city events and celebrations, as well as a standalone event. Our USTS National Championships draws over 50,000 spectators each year. A US Title Series event consists of a 2-3 day program generally with testing and practice laps on Friday and PRO racing on Saturday and Sunday. The racing program averages a 3-4 hour time frame each day. The US Title Series staff and participants are committed to providing a professionally organized, exciting, and entertaining racing event for your area. Along with the long running series and national events, the USTS has conducted several World Championship events held in the United States, a testament to the quality of our program.

### The Competition

From our youth, starting at age 11 with the K-PRO Hydro boats, to our veteran drivers, boat racing has become a traveling family of friends and competitors. Each year the US Title Series hosts race events at some of the most beautiful areas of the country with drivers traveling from as far away as California, New York and Florida to race against the best drivers, and fastest PRO boats in the country. Our classes range from 125cc up to 1100cc engines, with speeds reaching 120 miles per hour. There is no thrill more exciting than seeing several 100 mph boats racing to the first turn!

### **Boat Classes and Styles**

There are eleven classes in the U.S. Title Series based on the type of boat and the size of the engines. Engines are specifically designed for racing, burn methanol fuel, and are manufactured all over the world. A separate race is run for each class consisting of three heats per class and four laps per heat. There are three distinctive types of boats in the U.S. Title Series: Runabouts, Hydroplanes and Capsules.

Runabouts are hulls that have a flat bottom. They turn well, ride rough, and as any experienced Runabout rider will tell you, require the most skill to drive. U.S. Title Series has 4 Runabout classes dependent on engine size: 125cc, 250cc, 350cc, and 500cc. Runabouts don't have seats- the driver kneels and has to lean hard into the turns while bouncing on the water at speeds up to 100 mph. With one hand on the throttle and the other on the steering wheel, these sharp turning boats require quick reflexes and a love for adrenaline.

Hydroplanes are the fastest boats on the water. They are designed to ride on a tunnel of air over the water, these boats can reach and exceed speeds up to 120 mph. The Hydros run at 125cc, 250cc, and 350cc and are one of the most popular classes in the world. The 350cc Hydroplanes balance the abilities of high speeds with good handling, which results in very exciting racing.

The 500cc Hydros require a **capsule** and a 5-point harness seating system similar to NASCAR for safety conditions. These drivers carry oxygen and many use radios in their helmets to receive direction from their crew-chief. The Capsules run at 500cc, 700cc and 1100cc and are by far the fastest classes of racing in the USTS and possibly the world.



- Event Name: Father's Fay Hydrofest on Lake Cadillac ( East end of lake )
- **Sponsor of Event:** No money from City, we have many local sponsors for this event. The only thing we ask from the city is assistance and services from fire dept, public works, and law enforcement.
- Race site/ pit area: We are requesting the race site at the boat dock on chestnut, the overflow parking across the street, and I do have permission from MDOT to use the area at the great Lakes Railway Depot. Attached is a map. We also will need to utilize the dock near the pavilion for our starting clock and score judges.
  - We will need on Friday, Sat, and Sun that Chestnut St to be closed on both sides of race site. I would prefer that it be closed all 3 days but we can work with only having it closed from 8am to 6pm.
- Spectators: What is great about this event is that spectators can watch the race along the shores of Cadillac on both sides of the race site/pit area. There is ample parking downtown and I was told by city officials that people could use the school parking lot also. Again, I have included this on map.
- US Title Series Responsibilities: To provide a racing program on the dates listed
  - To provide Information, advertising, media coverage for event
  - All equipment to set up race course, judges stand, clock & flags
  - Provide a rescue boat and driver
  - All officials required to conduct the race
  - Provide an announcer for the event
  - Provide Certificate of Insurance prior to race event
  - USTS reserves the right to revise or change program for good cause
- Organizer of Event Responsibilities: As the Event organizer (Ray Bradford) duties include making sure the following is provided for weekend event.
  - To ensure Contract Amount is agreed and Paid to USTS
  - To provide suitable pit area, course control, sanitary facilities, and ease of access to the pit area/race site.
  - Provide a location for judges stand per USTS specifications

- Provide a public address system to cover pit area and spectators ( we have a PA system but I also am having it live on the radio)
- To furnish two boats (one for each turn for turn judges)
- To provide medical services 10am-6pm daily. ( working with Fire Dept. and North Flight )
- To notify local hospital race will be present and treatment may be required
- To provide one medical attendant to be stationed on USTS rescue boat
- To provide two certified divers
- Fenced Pit area
- Sufficient Security Personnel
- Provide local helpers
- Obtain legal permission to hold the event on the water and to prevent all other water activity in the area. Establish a buoy line of minimum 500 ft from race course where no spectator boats are allowed and a 1500 line for no wake zone
- Provide Weather/Event Cancellation Insurance for event
- Terms and conditions: Race Chairman, Referee, and Chief Scorekeeper, shall be in complete charge of the race program set forth by their rules and regulations.
  - In the event of inclement weather, the USTS shall have the right to delay the starting time to 4:00pm or cancel the event if the safety of the drivers is threatened
  - If the race, or part of the program, is canceled due to weather, the
    USTS will receive moneys from Sponsors to pay for officials, insurance,
    sanction fees used, and travel expenses.

### **Schedule of Events**

- Thursday 6/18 Race teams will begin to show up to Pit area. Late afternoon and
  evening we will be roping/fencing off area. (NO STREET CLOSURES). Many race teams
  will be booking hotel rooms and also some will be on location all weekend.
- Friday 6/19 Continue set up in the morning. Close road at 8am to 6pm (if this needs to happen) Racers begin testing on water from 10am to 5pm.
- Saturday 6/20 Racing program is 11am to 5pm
- Sunday 6/21 Racing program is 12pm to 5pm. With cleanup and teardown following right after racing. All racers will be out of the area no later than 10pm

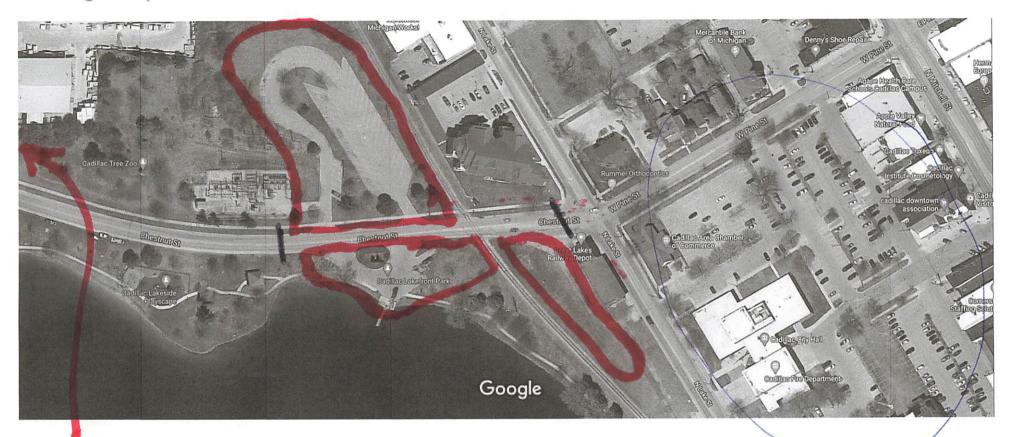
We are planning on plenty of TV and Radio coverage

Spectator turnout should average over 1,000 per day

USTS will consist of a few hundred or so. We did a survey and with just USTS race teams and family, we bring over \$30,000 into the local area.



### Google Maps



SCHOOL PACKING LOT



Imagery ©2020 Google, Imagery ©2020 Maxar Technologies, Map data ©2020 50 ft

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2/27/2020 Google Maps

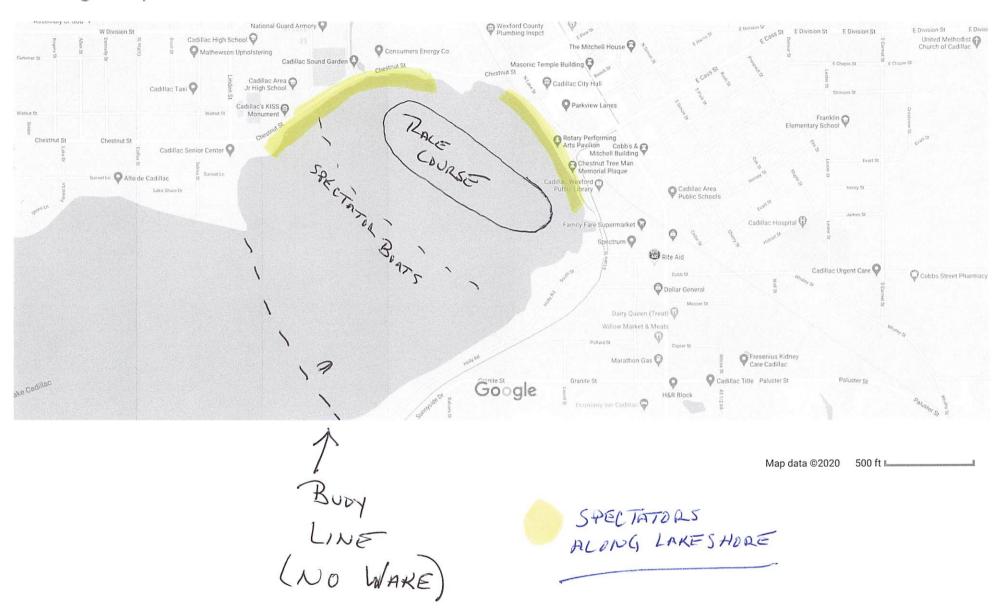
### Google Maps



Imagery ©2020 Google, Imagery ©2020 Maxar Technologies, USDA Farm Service Agency, Map data ©2020 100 ft

- JUDGES STAND - CLOCK

### Google Maps



### US Title Hydro Boat Race June 18th thru June 21st, 2020

### Parking Lot Closures: Duration of the whole event

6/18/2020 7:00am thru 9:00pm 6/21/2020 City "Park" by the public dock on chestnut and the overflow boat parking lot.

### **Street Closure: (During Racing Time)**

6/19/2020 8:00am thru 6:00pm Chestnut between N Lake & Blue Playground

6/20/2020 8:00am thru 6:00pm Chestnut between N Lake & Blue Playground

6/21/2020 8:00am thru 6:00pm Chestnut between N Lake & Blue Playground

Friday, Sat, and Sun Chestnut St to be a traffic-controlled road closure on both sides of race site. We will have volunteers for this from 9am to 6pm.



	216	100
Today's Date	0/0	100

**City Received Date** 

### Street & Parking Lot Closure Request Form

		Please fill out a separate form for each date	
Reason	n for Request <u>Eas</u> ter	egg hunt	
Contac	ct Person Sacob	harr	
Contac	ct Phone	Contact Email	
	Date: 4/4/2020	Street Closures	
	Street Name S. lakes	Beginning Location what is Ending Location we case of Beginning Time 12:00 AM/PM Ending Time 4:30 AM/PM	
	Street Name	Beginning Location Ending Location Beginning Time:AM/PM Ending Time:AM/PM	
	Street Name	Beginning Location Ending Location Beginning Time:AM/PM Ending Time:AM/PM	
	Street Name	Beginning Location Ending Location Beginning Time:AM/PM Ending Time:AM/PM	
	Date//	Parking Lot Closures	
	Lot Location	Street Nearest Cross Street Beginning Time:AM/PM Ending Time:AM/PM	
	Lot Location	Street Nearest Cross Street Beginning Time:AM/PM Ending Time:AM/PM	
	Lot Location	Street Nearest Cross Street Beginning Time:AM/PM Ending Time:AM/PM	
I unde	erstand and agree to these rec	to the above address or emailed to: <a href="mailto:javila@cadillac-mi.net">javila@cadillac-mi.net</a> (No Faxes accepted quirements & understand if these are not met the request will be denied.  Signature	
	uest will be reviewed & you wil	l be notified if additional information is needed and/or if request is approved or den	
		For Office Use Only	
	S		
	lanager		
City Co	ouncil	Date Approved Comments	



Tod	lay's Date <u>3/5/20</u>
	y Received Date
T	y Neceived Date

City Pa	ark (Fountain)	Request Fo	rm	
Reason for Request <u>Easter</u>	egg hunt			1.4
Organization (adillac	Jaycees	Contact Persor	Jacob	Karr
Contact Phon	Contact Emai			
	City of Cadillac	Guidelines:		_
Please read the following and in The Park is for public use The City does not provide any The fountain may not be open I understand and agree to the	tents, tables, chairs, rugs rating due to equipment b	, extension cords etc reak downs or weathe		
	Special Re	equests:		
Electricity Picnic Tables Use of private tent Use of private chairs				
Form must be mailed or brought to:  Cadillac City Hall  Attn: Public Works Depar 200 N. Lake Street  Cadillac, MI 49601  Print Name			Date <u>3</u> _	<u>15 120</u>
Request will be reviewed & you will	be notified if additional inf	ormation is needed and/	or if request is appr	oved or denied.
******	For Office Use (		*****	******
Public Works			Date Approved	
City Clerk			Date Approved	
City Manager			Date Approved	
City Council			Date Approved	



Today's Date \_\_

City Received Date



### **Request Planning Guide**

This form must be completed and return to the City 60 days before an event. Additionally a representative for the event must meet with City Event Team to verify all details for the event before going to City Council for approval. Failure to comply will result in a denial of your event. Please call (231) 775-0181 x 120 if you have questions.

Applicant Name (Print) David Bunce Contact Address						
Contact Email						
Sponsoring Organization Wexford Co Progressius Private Mon-Profit						
Purpose of Event Carth Day Approx # of Attendees 100 - 300						
Beginning Date: 4/26/20 Ending Date: 4/26/20 4:00 Reoccurring: YES NO						
1st Day Set-up 12:80AM/PM Start 1:80AM/PM End 580AM/PM Clean-up 500AM/PM						
2nd Day Set-up:AM/PM						
3rd Day Set-up:AM/PM Start:AM/PM End:AM/PM Clean-up:AM/PM						
4th Day Set-up:AM/PM Start:AM/PM End:AM/PM Clean-up:AM/PM						
Please answer the following questions:						
YES NO Will you be requesting permission to close any streets or parking lots?						
YES NO Will you be requesting permission to display any off site signage?  YES NO Will you be requesting permission to display a banner over Mitchell Street?						
YES NO Will you be requesting permission to display a banner over Mitchell Street?  YES NO Will you be requesting permission to reserve any of the City of Cadillac facilities						
Please Circle						
Market at Cadillac Commons Plaza  Rotary Pavilion City Park Cadillac Commons Plaza						
YES NO Will you be requesting permission to have a parade?						
YES NO Will you be requesting permission to hold any races?						
YES NO Will you be requesting permission to serve alcoholic beverages?  YES NO Will your event include use of generators, food trucks, grills, fireworks display, or a tent/membrane						
structure?						
If you answered <u>YES</u> to any of the above questions, additional form(s) must be completed for each one. All forms must be						

completely filled out and all information provided before requests will be brought to City Council for approval.

Forms can be mailed or delivered to the above address or emailed to: <a href="mailed:javila@cadillac-mi.net">javila@cadillac-mi.net</a>

All events require liability insurance: Required Min. general aggregate amount of \$1,000,000, naming the City of Cadillac as Certificate Holder and as additionally insured



Today's	Date	
•		<del></del>

**City Received Date** 

MUST BE OFFICIALLY CITY DATE STAMP

### **All City Parks Request Form**

Reason for Request <u>EARTH DAY</u>
Organization Wexford Coffogressives Contact Person Traval Bunce
Contact Email_
Date 4-26-20 Times 12 pm — 5 pm
City Parks
Please Check One
Downtown "Fountain" City Park
☐ Cadillac Commons Plaza
□ Sound Garden
☐ The Bridge
□ Naval Reserve Flower Open Space
☐ Tree Zoo Gazebo
City of Cadillac Guidelines:
Please read the following and initial to acknowledge your understanding
All Parks are for public use
The City does not provide any tents, tables, chairs, rugs, extension cords etc
The fountain may not be operating due to equipment break downs or weather conditions such as wind
I understand and agree to these requirements and understand if these are not met the request will be denied.
Not all parks have space for tents, chairs etc.
If needing speakers or microphone fee may be required (\$15)
Form must be emailed, mailed or brought to:
Cadillac City Hall
Attn: Public Works Department-Events 200 N. Lake Street
Cadillac, MI 49601
Print Name David Dince Signature David Doce Date 2/13/20

DAVIDBUNCE



### Today's Date 2-11-80

**City Received Date** 

MUST BE OFFICIALLY CITY DATE STAMP

### **Street & Parking Lot Closure Request Form**

Please fill out a separate form for each date

Reaso	on for Request	ARTH DAY CELEBRATION	
Conta	act Person Do	avid Runce	
		Contact Email_	
	Date: <u>4</u> /26/ 2	20 Street Closures	
	Street Name Lo	ke St Beginning Location Harris Ending Location Coss	
		Beginning Time/2:00AM/PM Ending Time 5:00AM/PM	
	Street Name	Beginning Location Ending Location	
		Beginning Time:AM/PM	
	Street Name	Beginning Location Ending Location	
		Beginning Time:AM/PM Ending Time:AM/PM	
	Street Name	Beginning Location Ending Location	
		Beginning Time:AM/PM	
	Date/	/ Parking Lot Closures	
	Lot Location	Street Nearest Cross Street	
		Beginning Time:AM/PM Ending Time:AM/PM	
	Lot Location	Street Nearest Cross Street	
		Beginning Time:AM/PM Ending Time:AM/PM	
	Lot Location	Street Nearest Cross Street	
		Beginning Time:AM/PM Ending Time:AM/PM	
l			
Form	must be mailed or d	delivered to the above address or emailed to: <u>javila@cadillac-mi.net</u> (No Faxes accepted	()
		these requirements & understand if these are not met the request will be denied.	
Print	Name <u>David</u>	d Bunce Signature Avidance Date 2/11/2	20
		<u>1 &amp; you will be notified if additional information is needed and/or if request is approved or den</u>	<u>ied.</u>
****		For Office Use Only	****
Streets			
Parks		Date Approved Comments	
Fire _		Date Approved Comments	
Police	9	Date Approved Comments	
City N	Aanager	Date Approved Comments	
City Council		Date Approved Comments	



200 N. Lake Street Cadillac MI 49601

Today's Date 2 - 13 - 20
City Received Date

Phone (231) //5-0181	
www.cadillac-mi.net	na Danamustian Farm
The Market at the Cadillac Common	ns Reservation Form
Please Submit 60-days Prior to Ev	vent Date
Event EARTH DAV	
Special Requests: Please	Circle
Electricity/Lights Heat	Wind Screens
<ul><li><u>Usage Rules:</u></li><li>1. Profanity and offensive language is strictly prohibited.</li></ul>	
<ol> <li>Noise must be limited to levels that do not disturb the peace, and must be</li> </ol>	lowered at the City's request.
3. No decorations, props, or appurtenances shall be used or placed in a mann	5 10 10 10 10 10 10 10 10 10 10 10 10 10
trees), or surrounding areas. The use of nails, tacks, staples, etc. is strictly p	prohibited, along with the use of stakes in the ground.
4. Any signage or decorations must be removed immediately following any ex-	vent.
5. The sale of food and non-alcoholic beverages may require an additional lice	
<ul> <li>The consumption or sale of alcoholic beverages requires approval of City Consumption</li> <li>Quilted floor MUST BE protected at all times please make sure tables; chair</li> </ul>	
protection.	and etc. are equipped with rubber of tere
Reservation Fees:	
<ul> <li>Non-Profit Daily Rate (4 hours or more) \$50</li> <li>Non-Profit Hourly Rate (less than 4 hours) \$25 per hour</li> </ul>	
Reoccurring Events: Events that are a minimum of once a week, for four conse	acutive weeks or more
	ecutive weeks of more
Daily Rate of \$25:  Non-Profit Polity Rate of \$15.	
Non-Profit Daily Rate of \$15	
All Fee options require a deposit of \$25 that will be applied to your total cost	t to hold your data(s) and would only be refunded if
event was denied for any reason.	t to floid your date(s), and would only be refunded in
Market Hours 7:00 AM through 1	11·00 PM
Market Hours 7.00 AM through 1	11.00 FW
I understand and agree to comply with these rules, and acknowledge that the	City reserves the right to change or cancel any event or
program that is not in compliance with them.	
1000	Burce
Signature	
	St. H. III Attantian Frants Considerates at
Form must be mailed/emailed or delivered to Cadillac Ci	
200 N. Lake Street in Cadilla	
javila@cadillac-mi.ı	net.
Print Name Total Fees Required:	Total Fees Paid: Date / /



## Non-Profit Rotary Sign Request Form

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Contact		<u>. د</u>	d	F	<u>ک</u> د	n	ce									
Comtact	. 61301	•											ıeı	epnon	e Num	ber
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	[	Display	y Start	Date						Di	splay	End D	ate			
Requestor	Signa	ture	J.				100	احو	<u>ə</u>		2	Date	13.	-2	0	
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arks Supe	rvisor	Signa	ture							<del></del>	Da	ite			<del></del>	



City Received Date	
SALEST OF DEPORTAGE SETT	MATE

### **Banner Request Form**

(Banners are installed and removed on Mondays unless it is a Holiday, then it will be the following day (Banners may only be requested for one week at a time per form)  Reason for Banner  Whomat bibrary week  Organization  Friends of the Catiliae library Contact Person Vikie Essenmanh  Contact Email  City of Cadillac & State of Michigan Guidelines:  Banner requested date is a minimum of 2 months prior to display date requested.  Banner picture or a design proof is attached with this request form or it will not be approved.  The City reserves the right to determine when the banner is hung during inclement weather.  The City is not responsible for any damages to the banner.  Banner requested is for a reasonable and public purpose.  Banner does not display any legend or symbol which may be construed to advertise, promote the sale of publicize any merchandise or commodity, or be political in nature.  The legend may contain the name of the sponsor paying for the banner if such is not an obvious advertisi and promotion of the sale of the sponsor's goods or services.  The lettering of the sponsor's goods or services.  The lettering of the sponsor's name or a logo does not exceed three inches if on a single line or two-inche more than one line.  Banner does not contain an address or directions to location.  Banner meets all the design specifications on the back of this form.  The banner will be delivered to City Garage a minimum of 1 week before banner is to be displayed.  City Garage is located at 1001 6th Street and hours. Call Street Supervisor at (231)920 -7800 to schedule tit Banner will be delivered to the above address or emailed to: javila@cadillac-mi.net (No Foxes accepted)  Inderstand and agree to these requirements & understand if these are not met the request will be denied.  Print Name  Vick Case May Signature  Date Approved  Comments  City Good Formatics  Comments  City Good Formatics  Date Approved  Comments  Comments  Comments	Monday Ban	ner Start Date 41 201 20	120 M	onday Banner End Date	4/27/2020
City of Cadillac & State of Michigan Guidelines:  Contact Email  City of Cadillac & State of Michigan Guidelines:  Banner requested date is a minimum of 2 months prior to display date requested.  Banner picture or a design proof is attached with this request form or it will not be approved.  The City reserves the right to determine when the banner is hung during inclement weather.  The City is not responsible for any damages to the banner.  Banner requested is for a reasonable and public purpose.  Banner does not display any legend or symbol which may be construed to advertise, promote the sale of publicize any merchandise or commodity, or be political in nature.  The lettering of the sale of the sponsor's goods or services.  Y. The lettering of the sponsor's name or a logo does not exceed three inches if on a single line or two-inche more than one line.  Banner meets all the design specifications on the back of this form.  The banner will be delivered to City Garage a minimum of 1 week before banner is to be displayed.  City Garage is located at 1001 6" Street and hours. Call Street Supervisor at (231)920-7800 to schedule till Banner mill be picked up within 1 week after being displayed; if it is not picked up, the banner will be deliped understand and agree to these requirements & understand if these are not met the request will be denied.  Print Name Vickic Caseman Comments Signature Signature Comments  Date Approved Comments  Date Approved Comments  Date Approved Comments  Date Approved Comments	(Banners a	e installed and removed on I	Mondays unless	it is a Holiday, then it w	ill be the following day)
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Today's	Date	1-2-2020

**City Received Date** 

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### **Banner Request Form**

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Reason for Banner Sexual	Assault Awareness Mont	h	
Organization Oasis Family	Resource Center	Contact Person _K	im Venema
Contact Phone 231-775-	7299 Contact Email Kin	n. venema @ cadilla	coasis-frc. org
9	City of Cadillac & State of I	Michigan Guldelines	<u>s:</u>
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# SEXUAL ASSAULT AWARENESS MONTH





Today's Date	1-2-2020
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City Council				
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# SEXUAL ASSAULT AWARENESS MONTH



### **Council Communication**

Re: Child Protection Council – "Pinwheels for Prevention"

As noted by the attached request Karen Staub, Prevention Coordinator, Child Protection Council, has requested permission to conduct a "Pinwheels for Prevention" procession the first week of April. Parents, children, and the area agencies concerned about child abuse will be invited to walk Mitchell Street (sidewalks) and plant pinwheels in each of the planter boxes at the corner of Harris and Mitchell Streets. The walk will begin at Toy Town and end at the intersection of Harris and Mitchell Streets. In previous years the walk would begin at 4:00pm. They also wish to include a small yard type sign in each of the four planter boxes supporting Pinwheels for Prevention in Michigan. This request is the same as in the previous six years.

April is Child Abuse Prevention Month and the Month of the Young Child. The pinwheels will be in place from the first week in April through April 30, 2020. The pinwheels will not contain messages.

Ms. Staub anticipates attending the council meeting to address any questions.

Staff has reviewed the request and supports the program subject to the following conditions;

- 1. The program shall run from April 1, 2020 through April 30, 2020.
- 2. Participants must obey all general laws of the pedestrian traffic control devices at intersections.
- 3. All displays shall be maintained throughout the period of display.
- 4. Allow one-yard type sign per planter box.
- 5. Pinwheels shall be removed no later than May 1, 2020.

### Requested Council Action

Council is asked to approve the request of the Child Prevention Council for the "Pinwheels for Prevention Program" in Downtown Cadillac subject to the above conditions.

#### Mike Coy

From: Karen Staub <staubhome@charter.net>

**Sent:** Tuesday, March 3, 2020 9:23 PM

To: Mike Coy Subject: pinwheel walk

#### Hi Mike

I am writing to request to get on the City Council meeting schedule to address the City Council regarding our annual pinwheel walk. The exact date has not yet been set, though we hope to do the walk at the beginning of April. At that time we would walk one block down Mitchell Street to the corner of Harris and Mitchell to plant pinwheels and a yard sign in each of the 4 planter boxes on the corner. This is done each year as an awareness raising event for Child Abuse Prevention Month.

We are requesting permission to place one yard sign and approximately 40-50 pinwheels in each area. The pinwheels will be maintained by our council throughout the month and removed at the end of April. Please let me know if this is possible.

Thank you,

Karen Staub, Prevention Coordinator
Wexford-Missaukee Child Protection Council
P.O. Box 1031
Cadillac, MI 49601
231-779-8445
www.wexfordmissaukeecpc.com

"Teach The Children So It Will Not Be Necessary To Teach The Adults"



200 N. Lake Street Cadillac MI 49601 Phone (231) 775-0181 www.cadillac-mi.net

Today's Date	2. 2020
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State of Michigan		
City Council	Date Approved	Comments





# Lake Cadillac 2019 Aquatic Vegetation, Water Quality, and 2020 Management Recommendations Annual Report



December 2019

# Lake Cadillac 2019 Aquatic Vegetation, Water Quality, and 2020 Management Recommendations Annual Report



© Restorative Lake Sciences 18406 Spring Lake Road Spring Lake, Michigan 49456

Email: info@restorativelakesciences.com

Website: http://www.restorativelakesciences.com

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Section 2: Lake Cadillac Water Quality Data (2019)	5
Section 3: Lake Cadillac Aquatic Vegetation Data (2019)	14
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Section 5: Management Recommendations for 2020	26

Section

## Lake Cadillac 2019 Aquatic Vegetation, Water Quality, and 2020 Management Recommendations Annual Report

The following Cadillac report is a summary of key lake findings collected in 2019.

The overall condition of Lake Cadillac relative to invasive species management has been improving over the years due to rigorous aquatic vegetation surveys and selective spottreatments to control invasive aquatic plant species such as hybrid Eurasian Watermilfoil (EWM), and Curly-leaf Pondweed. Both of these species are declining in Lake Cadillac and providing space for the 20 native aquatic plant species that are so important to the ecological balance of Lake Cadillac.

In 2019, RLS collected multiple water quality parameters from Lake Cadillac which include water temperature, dissolved oxygen, pH, conductivity, oxidative reduction potential, total dissolved solids, turbidity, total phosphorus, total nitrogen, Secchi transparency, chlorophyll-a and algal community, macroinvertebrates, and zooplankton composition. In addition, RLS collected 10 sediment samples from around Lake Cadillac to determine the sediment nutrients such as phosphorus and organic matter and to determine the extent of the lake dissolved oxygen. There is concern about the overabundance of the blue-green algae *Microcystis*, the low dissolved oxygen at the lake bottom during the warm summer months, and the low amount of native aquatic vegetation cover as well as the macroinvertebrates that represent fair water quality. A late season blue-green algal bloom occurred in late August and was not as extensive as in recent years.

RLS offers many improvement recommendations for the 2020 season and beyond relative to storm drain monitoring, nutrient reduction, blue-green algal reduction, continued management of invasive aquatic plant species, reduction of Canada geese, and the education of Lake Cadillac riparians.

# Section

#### **Lake Cadillac Water Quality Data (2019)**

#### Water Quality Parameters Measured

There are hundreds of water quality parameters one can measure on an inland lake, but several are the most critical indicators of lake health. These parameters include water temperature (measured in °C or °F), dissolved oxygen (measured in mg/L), pH (measured in standard units-SU), conductivity (measured in micro-Siemens per centimeter-µS/cm), total alkalinity (mg/L CaCO<sub>3</sub>), total dissolved solids (mg/L), turbidity (NTU's), secchi transparency (feet), total phosphorus, and total nitrogen (both in mg/L), chlorophyll-a (in µg/L), and algal community composition. Water quality was measured in the three deep basins of Lake Cadillac in spring (May 30, 2019) and summer (August 12, 2019) (Figure 1). There was very little variation in 1-foot interval readings, so the top, middle, and bottom depth measurements are reported below to show the change in water column conditions from the surface to the bottom of the lake.

Additional water quality samples collected at the three deep basins included sediment macroinvertebrates and water column zooplankton. Also collected were ten sediment samples which were analyzed for sediment organic matter, total phosphorus, and dissolved oxygen at depth.

RLS attempted to collect flow measurements and water quality samples from the Black River inflow at Kenwood Park and the M-115 causeway area but the incoming water was mixing with the lake water due to high water levels and an unmixed sample could not be obtained. A sample of water quality parameters at the Lake Mitchell inlet was able to be measured at the other end of the channel and that data is presented in the sections below.

Table 1 below demonstrates how lakes are classified based on key parameters. Lake Cadillac would be considered eutrophic (productive) since it does contain ample phosphorus, nitrogen, and aquatic vegetation and excessive blue-green algae growth. General water quality classification criteria are defined in Table 1. 2019 water quality data for Lake Cadillac are shown below in Tables 2-7.

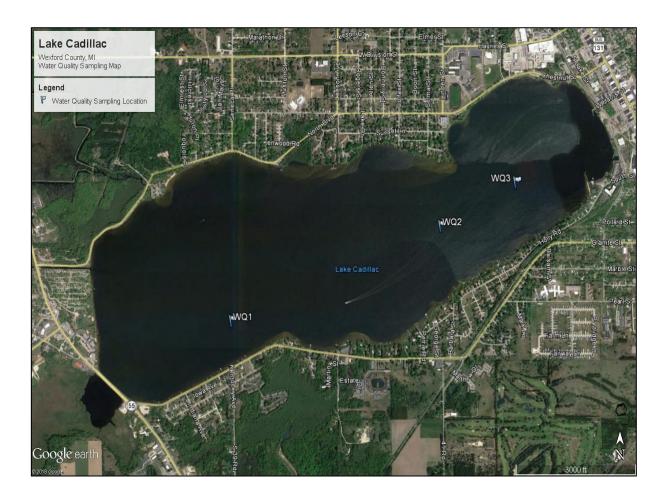


Figure 1. Deep Basin Water Quality Sampling Locations (n=3) in Lake Cadillac.

Table 1. Lake trophic classification (MDNR).

Lake Trophic Status	Total Phosphorus (µg L <sup>-1</sup> )	Chlorophyll-a (µg L <sup>-1</sup> )	Secchi Transparency (feet)
Oligotrophic	< 10.0	< 2.2	> 15.0
Mesotrophic	10.0 – 20.0	2.2 - 6.0	7.5 – 15.0
Eutrophic	> 20.0	> 6.0	< 7.5

#### **Lake Cadillac Deep Basin Water Quality Data Tables:**

Table 2. Lake Cadillac water quality parameter data collected over deep basin #1 on May 30, 2019.

Depth ft.	Water Temp °C	DO mg L <sup>-1</sup>	pH S.U.	Cond. μS cm <sup>1</sup>	Turb. NTU	TDS mg L <sup>-1</sup>	TP mg L <sup>-1</sup>	TKN mg L <sup>-1</sup>	Chl-a μg L <sup>-1</sup>
0	18.1	8.1	8.6	163	2.1	91	<0.020	0.5	2.0
11.0	17.5	7.9	8.5	163	2.3	91	<0.030	0.5	
22.0	13.7	3.0	8.5	165	2.7	93	<0.030	1.0	

Table 3. Lake Cadillac water quality parameter data collected over deep basin #2 on May 30, 2019.

Depth ft.	Water Temp °C	DO mg L <sup>-1</sup>	pH S.U.	Cond. μS cm <sup>-1</sup>	Turb. NTU	TDS mg L <sup>-1</sup>	TP mg L <sup>-1</sup>	TKN mg L <sup>-1</sup>	Chl-a μg L <sup>-1</sup>
0	18.0	7.9	8.6	160	2.1	90	<0.020	0.5	3.0
11.0	17.3	6.6	8.5	160	2.6	89	<0.030	0.5	
22.0	13.9	2.4	8.4	160	2.9	92	0.030	0.7	

Table 4. Lake Cadillac water quality parameter data collected over deep basin #3 on May 30, 2019.

Depth ft.	Water Temp °C	DO mg L <sup>-1</sup>	pH S.U.	Cond. μS cm <sup>-1</sup>	Turb. NTU	TDS mg L <sup>-1</sup>	TP mg L <sup>-1</sup>	TKN mg L <sup>-1</sup>	Chl-a μg L <sup>-1</sup>
0	18.3	7.8	8.5	161	1.9	88	<0.020	0.5	2.0
13.0	17.0	6.9	8.5	161	2.8	91	0.030	0.5	
26.0	14.0	2.8	8.4	161	3.1	93	0.040	1.0	

Table 5. Lake Cadillac water quality parameter data collected over deep basin #1 on August 12, 2019.

Depth ft.	Water Temp °C	DO mg L <sup>-1</sup>	pH S.U.	Cond. μS cm <sup>-1</sup>	Turb. NTU	TDS mg L <sup>-1</sup>	TP mg L <sup>-1</sup>	TKN mg L <sup>-1</sup>	Chl-a µg L <sup>-1</sup>
0	25.7	10.1	8.6	167	2.1	89	0.016	1.4	3.0
11.0	23.2	6.3	8.6	167	3.0	89	0.016	1.6	
22.0	21.8	0.7	8.5	472	3.1	90	0.019	8.0	

Table 6. Lake Cadillac water quality parameter data collected over deep basin #2 on August 12, 2019.

Depth ft.	Water Temp °C	DO mg L <sup>-1</sup>	pH S.U.	Cond. μS cm <sup>-1</sup>	Turb. NTU	TDS mg L <sup>-1</sup>	TP mg L <sup>-1</sup>	TKN mg L <sup>-1</sup>	Chl-a μg L <sup>-1</sup>
0	25.4	9.9	8.6	166	2.1	86	0.015	0.5	3.0
11.0	23.4	6.4	8.5	166	2.8	86	<0.020	1.0	
22.0	21.6	0.9	8.5	167	3.1	88	0.020	0.7	

Table 7. Lake Cadillac water quality parameter data collected over deep basin #3 on August 12, 2019.

Depth ft.	Water Temp °C	DO mg L <sup>-1</sup>	pH S.U.	Cond. μS cm <sup>-1</sup>	Turb. NTU	TDS mg L <sup>-1</sup>	TP mg L <sup>-1</sup>	TKN mg L <sup>-1</sup>	Chl-a μg L <sup>-1</sup>
0	25.5	9.5	8.5	167	1.9	86	<0.020	<0.5	3.0
13.0	23.0	6.0	8.5	167	2.2	86	<0.020	0.5	
26.0	20.1	8.0	8.5	169	3.9	89	0.030	1.0	

#### **Dissolved Oxygen**

Dissolved oxygen is a measure of the amount of oxygen that exists in the water column. In general, dissolved oxygen levels should be greater than 5 mg L<sup>-1</sup> to sustain a healthy warmwater fishery. Dissolved oxygen concentrations may decline if there is a high biochemical oxygen demand (BOD) where organismal consumption of oxygen is high due to respiration. Dissolved oxygen is generally higher in colder waters.

Dissolved oxygen was measured in milligrams per liter (mg L<sup>-1</sup>) with the use of a calibrated Eureka Manta II® dissolved oxygen meter and multi-probe. During the summer months, dissolved oxygen at the surface is generally higher due to the exchange of oxygen from the atmosphere with the lake surface, whereas dissolved oxygen is lower at the lake bottom due to decreased contact with the atmosphere and increased biochemical oxygen demand (BOD) from microbial activity. Dissolved oxygen concentrations during the May 30, 2019 sampling event ranged from a high of 8.1 mg L<sup>-1</sup> to a low of 2.4 mg L<sup>-1</sup>. On this date, all three deep basins showed dissolved oxygen depletion. On the August 12, 2019 sampling date, the dissolved oxygen concentration ranged from a high of 9.9 mg L<sup>-1</sup> among the deep basins to a low of 0.7 mg L<sup>-1</sup> which was observed at the bottom of all three deep basins. The dissolved oxygen concentration in the channel ranged from 7.7-8.8 mg L<sup>-1</sup> in June and August of 2019.

#### **Water Temperature**

A lake's water temperature varies within and among seasons and is nearly uniform with depth under the winter ice cover because lake mixing is reduced when waters are not exposed to the wind. When the upper layers of water begin to warm in the spring after ice-off, the colder, dense layers remain at the bottom. This process results in a "thermocline" that acts as a transition layer between warmer and colder water layers. During the fall season, the upper layers begin to cool and become denser than the warmer layers, causing an inversion known as "fall turnover". In general, shallow lakes will not stratify and deeper lakes may experience single or multiple turnover cycles. Water temperature was measured in degrees Celsius (°C) with the use of a calibrated submersible thermometer electrode. The May 30, 2019 water temperatures of Lake Cadillac demonstrated a weak thermocline with a temperature difference of <5°C in the three deep basins. During the August 12, 2019 sampling event, the three deep

basins demonstrated a temperature difference of 5°C from the surface to the bottom. Lake Cadillac likely turns over multiple times per season with strong wind events that evenly mix the water column. The water temperatures of the channel ranged between 18-23 °C during the May and August sampling events.

#### **Oxidative Reduction Potential**

The oxidation-reduction potential ( $E_h$ ) of lake water describes the effectiveness of certain atoms to serve as potential oxidizers and indicates the degree of reductants present within the water. In general, the Eh level (measured in millivolts) decreases in anoxic (low oxygen) waters. Low  $E_h$  values are therefore indicative of reducing environments where sulfates (if present in the lake water) may be reduced to hydrogen sulfide ( $H_2S$ ). Decomposition by microorganisms in the hypolimnion may also cause the  $E_h$  value to decline with depth. The  $E_h$  values for Lake Cadillac ranged from 171.6 mV to 78.0 mV from the surface to the bottom in both May and August and are within a normal range for a large inland lake.

#### Water Clarity (Secchi Transparency)

Elevated Secchi transparency readings allow for more aquatic plant and algae growth. The transparency throughout Lake Cadillac was adequate on May 30, 2019 (mean of 14.5 feet) to allow abundant growth of algae and aquatic plants in the majority of the littoral zone of the lake. On August 12, 2019, the mean Secchi transparency was 5.1 feet. Secchi transparency is variable and depends on the number of suspended particles in the water (often due to windy conditions of lake water mixing) and the amount of sunlight present at the time of measurement. Other parameters such as turbidity (measured in NTU's) and Total Dissolved Solids (measured in mg/L) are correlated with water clarity and show an increase as clarity decreases. The Secchi transparency of Lake Cadillac has been decreasing over time due to intense blue-green algal blooms that limit light penetration throughout the water column. This can also negatively impact native aquatic plant communities that depend on adequate light.

#### **Total Phosphorus**

Total phosphorus (TP) is a measure of the amount of phosphorus (P) present in the water column. Phosphorus is the primary nutrient necessary for abundant algae and aquatic plant growth. TP concentrations are usually higher at increased depths due to higher release rates of P from lake sediments under low oxygen (anoxic) conditions. Phosphorus may also be released from sediments as pH increases. The TP levels in Lake Cadillac are moderate; however, the dissolved oxygen levels are low enough at the bottom to possibly cause release of phosphorus from the bottom. The TP concentrations on May 30, 2019 ranged from <0.020-0.040 mg L⁻¹, which is above the eutrophic threshold (≤ 0.025 mg L⁻¹). The TP concentrations on August 12, 2019 ranged from 0.015-0.030 mg L⁻¹. The TP concentrations in the channel ranged from <0.020-0.020 mg L⁻¹.

#### **Total Kjeldahl Nitrogen**

Total Kjeldahl Nitrogen (TKN) is the sum of nitrate (NO<sub>3</sub>-), nitrite (NO<sub>2</sub>-), ammonia (NH<sub>4</sub>+), and organic nitrogen forms in freshwater systems. Much nitrogen (amino acids and proteins) also comprises the bulk of living organisms in an aquatic ecosystem. Nitrogen originates from atmospheric inputs (i.e. burning of fossil fuels), wastewater sources from developed areas (i.e. runoff from fertilized lawns), agricultural lands, septic systems, and from waterfowl droppings. It also enters lakes through ground or surface drainage, drainage from marshes and wetlands, or from precipitation (Wetzel, 2001). In lakes with an abundance of nitrogen (N: P > 15), phosphorus may be the limiting nutrient for phytoplankton and aquatic macrophyte growth. Lakes with a mean TKN value of 0.66 mg L<sup>-1</sup> may be classified as oligotrophic, those with a mean TKN value of 0.75 mg L<sup>-1</sup> may be classified as mesotrophic, and those with a mean TKN value greater than 1.88 mg L<sup>-1</sup> may be classified as eutrophic. The mean TKN concentration in Lake Cadillac on August 12, 2019 averaged 0.9 mg L<sup>-1</sup>. The mean TKN concentration in the channel was also around 0.5 mg L<sup>-1</sup>.

#### **Total Alkalinity**

Lakes with high alkalinity (> 150 mg L<sup>-1</sup> of CaCO<sub>3</sub>) are able to tolerate larger acid inputs with less change in water column pH. Many Michigan lakes contain high concentrations of CaCO<sub>3</sub> and are categorized as having "hard" water. Total alkalinity may change on a daily basis due to the re-suspension of sedimentary deposits in the water and respond to seasonal changes due to the cyclic turnover of the lake water. The total alkalinity of Lake Cadillac and the channel was moderately low and averaged around 52 mg L<sup>-1</sup> of CaCO<sub>3</sub> throughout the summer and this indicates a slightly soft water lake.

#### **Turbidity and Total Dissolved Solids**

Turbidity is a measure of the loss of water transparency due to the presence of suspended particles. The turbidity of water increases as the number of total suspended particles increases. Turbidity may be caused by erosion inputs, phytoplankton blooms, storm water discharge, urban runoff, re-suspension of bottom sediments, and by large bottom-feeding fish such as carp in shallow areas. Particles suspended in the water column absorb heat from the sun and raise water temperatures. Since higher water temperatures generally hold less oxygen, shallow turbid waters are usually lower in dissolved oxygen. Turbidity is measured in Nephelometric Turbidity Units (NTU's) with the use of a turbidimeter. The World Health Organization (WHO) requires that drinking water be less than 5 NTU's; however, recreational waters may be significantly higher than that.

The turbidity of Lake Cadillac was moderately low and ranged from 1.9-3.9 NTU's during the 2019 sampling events. Spring values would likely be higher due to increased watershed inputs from spring runoff and/or from increased algal blooms in the water column from resultant runoff

contributions. The mean turbidity of the channel was 2.1 NTU's and is slightly lower possibly due to less wind and sediment re-suspension.

Total dissolved solids (TDS) is a measure of the amount of dissolved organic and inorganic particles in the water column. Particles dissolved in the water column absorb heat from the sun and raise the water temperature and increase conductivity. TDS was measured with the use of a calibrated TDS probe in mg L<sup>-1</sup>. Spring values are usually higher due to increased watershed inputs from spring runoff and/or increased planktonic algal communities. The TDS in Lake Cadillac ranged from 85-94 mg L<sup>-1</sup> for the deep basins during the 2019 sampling events, which is moderate for an inland lake. The preferred range for TDS in surface waters is between 0-1,000 mg L<sup>-1</sup> but the lower values are most favorable. The TDS in the channel ranged from 62-74 mg L<sup>-1</sup> which is lower than the lake.

#### pН

Most Michigan lakes have pH values that range from 6.5 to 9.5. Acidic lakes (pH < 7) are rare in Michigan and are most sensitive to inputs of acidic substances due to a low acid neutralizing capacity (ANC). Lake Cadillac is considered "slightly basic" on the pH scale. The pH of Lake Cadillac and channel ranged from 8.4-8.6 S.U. during the 2019 sampling events which is ideal for an inland lake. All of these values are normal and favorable for aquatic environments.

#### **Conductivity**

Conductivity is a measure of the number of mineral ions present in the water, especially those of salts and other dissolved inorganic substances. Conductivity generally increases as the amount of dissolved minerals and salts in a lake increases, and also increases as water temperature increases. The conductivity in Lake Cadillac ranged from 160-165  $\mu$ S/cm on May 30, 2019 and from 161-472  $\mu$ S/cm on August 12, 2019. These values are ideal for an inland lake; however, the bottom value of 472 was quite high and the reason for this is unclear. Severe water quality impairments do not occur until values exceed 800  $\mu$ S/cm and are toxic to aquatic life around 1,000  $\mu$ S/cm.

#### Chlorophyll-a and Algal Species Composition

Chlorophyll-*a* is a measure of the amount of green plant pigment present in the water, often in the form of planktonic algae. High chlorophyll-*a* concentrations are indicative of nutrient-enriched lakes. Chlorophyll-*a* concentrations greater than 6  $\mu$ g L<sup>-1</sup> are found in eutrophic or nutrient-enriched aquatic systems, whereas chlorophyll-*a* concentrations less than 2.2  $\mu$ g/L <sup>are</sup> found in nutrient-poor or oligotrophic lakes. The chlorophyll-*a* concentrations on May 30, 2019 ranged from 2.0-3.0  $\mu$ g L<sup>-1</sup> and the chlorophyll-*a* concentrations on August 12, 2019 were all around 3.0  $\mu$ g L<sup>-1</sup>.

The algal genera were determined from composite water samples collected over the deep basins of Lake Cadillac in 2019 were analyzed with a compound bright field microscope. The genera present included the Chlorophyta (green algae): *Chlorella* sp., *Scenedesmus* sp. *Rhizoclonium* sp., Cladophora sp., *Mougeotia* sp., *Pandorina* sp., and *Chloromonas* sp.

The Cyanophyta (blue-green algae): *Microcystis* sp., and *Oscillatoria* sp., the Bascillariophyta (diatoms): *Navicula* sp., *Rhoicosphenia* sp., *Synedra* sp., *Cymbella* sp., and *Fragillaria* sp. The aforementioned species indicate a diverse algal flora and represent a good diversity of alga. In 2019, all the most dominant blue-green algae in the water samples was *Microcystis* sp. (Figure 2), which is problematic for dense algal blooms that may form toxins and present a risk for public health and the overall health of the Lake Cadillac ecosystem. However, in 2019, these blooms were reduced, and the dominant algae were single-celled green algae which are preferable.



Figure 2. A pea-green colored blue-green algae (*Microcystis*) bloom in Lake Cadillac in 2019.

# Section 3

#### Lake Cadillac Aquatic Vegetation Data (2019)

#### Status of Native Aquatic Vegetation in Lake Cadillac

The native aquatic vegetation present in Lake Cadillac is essential for the overall health of the lake and the support of the lake fishery. There were two types of surveys conducted on Lake Cadillac during the 2019 season. The first type of survey was a whole-lake aquatic plant survey and the second type of survey was a whole-lake benthic scan which utilized 14,595 points to generate an updated lake depth contour map and aquatic vegetation biovolume map.

A whole-lake aquatic plant survey using the GPS Point-Intercept survey method as in Figure 3 below determined that there was a total of 20 native aquatic plant species in the lake. These included 13 submersed species, 2 floating-leaved species, and 5 emergent species. This indicates a good biodiversity of aquatic vegetation in Lake Cadillac. The overall % cover of the lake by native aquatic plants is low relative to the lake size due to the great mean depth and thus these plants should be protected unless growing near swim areas at nuisance levels. A list of all current native aquatic plant species and their frequency is shown below in Table 8. Aquatic vegetation biovolume is displayed in Figure 4 below. The blue color represents a lack of aquatic vegetation whereas the green color represents low-growing aquatic vegetation. A red color represents aquatic plants that grow high into the water column such as milfoil or pondweeds. This figure demonstrates that a lot of area in the lake lacks aquatic vegetation.

The most dominant aquatic plant species in June of 2019 included: 1) Illinois Pondweed which has lance-shaped brown leaves that often have a reddish cast and the plant also grows tall into the water column; and 2) Large-leaf Pondweed which grows tall in the water column and has large, wide brown leaves, and 3) Fern-leaf Pondweed which forms dense mats near the lake bottom and has leaves that resemble small ferns. The latter can also prevent EWM fragments from rooting in areas where it is dense.

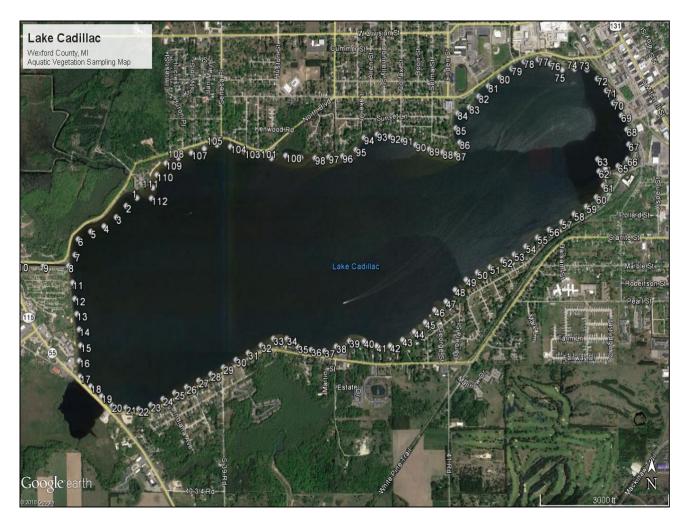


Figure 3. Aquatic vegetation sampling points in Lake Cadillac (May 30, 2019: Note: Each of these locations includes survey areas from the shoreline to the 10-foot depth contour).

Table 8. Lake Cadillac Native Aquatic Plant Species (May 30, 2019).

Native Aquatic Plant Species Name	Aquatic Plant Common Name	Frequency (%)	Aquatic Plant Growth Habit
Chara vulgaris	Muskgrass	32	Submersed, Rooted
Potamogeton pectinatus	Thin-leaf Pondweed	11	Submersed, Rooted
Potamogeton amplifolius	Large-leaf Pondweed	40	Submersed, Rooted
Potamogeton zosteriformis	Flat-stem Pondweed	12	Submersed, Rooted
Potamogeton gramineus	Variable-leaf Pondweed	16	Submersed, Rooted
Potamogeton robbinsii	Fern-leaf Pondweed	35	Submersed, Rooted
Potamogeton praelongus	White-stem Pondweed	18	Submersed, Rooted
Potamogeton richardsonii	Clasping-leaf Pondweed	14	Submersed, Rooted
Potamogeton illinoensis	Illinois Pondweed	45	Submersed, Rooted
Elodea canadensis	Common Waterweed	12	Submersed, Rooted
Ceratophyllum demersum	Coontail	9	Submersed, Non-Rooted
Utricularia vulgaris	Bladderwort	13	Submersed, Non-Rooted
Najas guadalupensis	Southern Naiad	11	Submersed, Rooted
Nuphar variegata	Yellow Waterlily	6	Floating-leaved, Rooted
Spirodella sp.	Duckweed	2	Floating-leaved, Non-Rooted
Typha latifolia	Cattails	3	Emergent
Scirpus acutus	Bulrushes	4	Emergent
Iris sp.	Iris	4	Emergent
Sagittaria sp.	Arrowhead	3	Emergent
Pontedaria cordata	Pickerelweed	4	Emergent

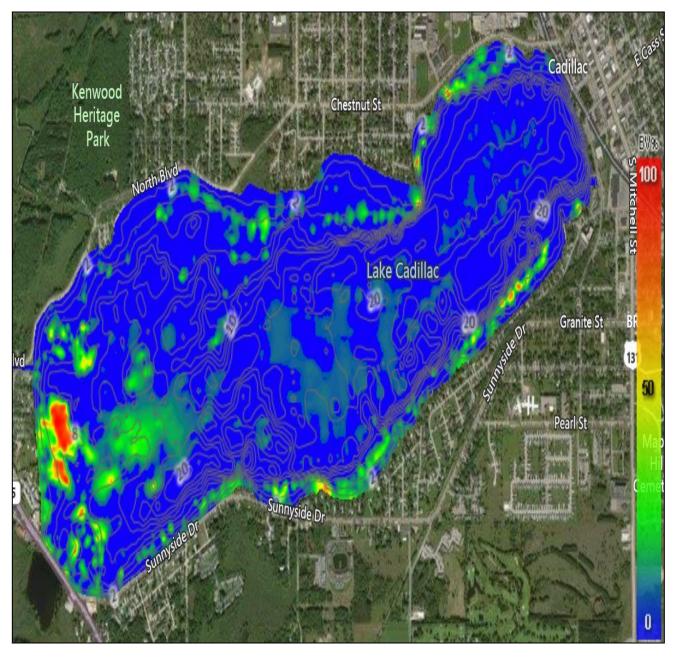


Figure 4. Aquatic vegetation biovolume scan and map of Lake Cadillac on May 30, 2019 (RLS). NOTE: The blue color represents no vegetation present; Red color represent tall, high-growing aquatic plants; Green color represents low-growing vegetation on the lake obttom such as Chara.

#### Status of Invasive (Exotic) Aquatic Plant Species

The amount of Eurasian Watermilfoil (Figure 5) and Curly-leaf Pondweed (Figure 6) present in Lake Cadillac varies each year and is dependent upon climatic conditions, especially runoff-associated nutrients. There were intense rainfall events in 2019 that resulted in increased runoff and many lakes experienced nuisance milfoil and algal outbreaks. 2019 was another good year for Lake Cadillac though with controlled invasives and periodic algal blooms. The May 30, 2019 survey revealed that approximately 13.5 acres of dense milfoil was found throughout the entire lake. These areas were treated on June 18, 2019 by PLM with the systemic herbicide Sculpin G® at a dose of 200 lbs. /acre. In addition, 4.6 acres of late-season EWM was treated on August 20, 2019 by PLM with Sculpin G at a dose of 240 lbs./acre. No CLP was treated in 2019. Treatment maps for the EWM are shown in the maps below (Figures 7 and 8). Table 9 shows the treatment history for Lake Cadillac relative to the use of herbicides and previously biocontrol for the management of invasive aquatic plants.



Figure 5. Eurasian Watermilfoil



Figure 6. Curly-leaf Pondweed

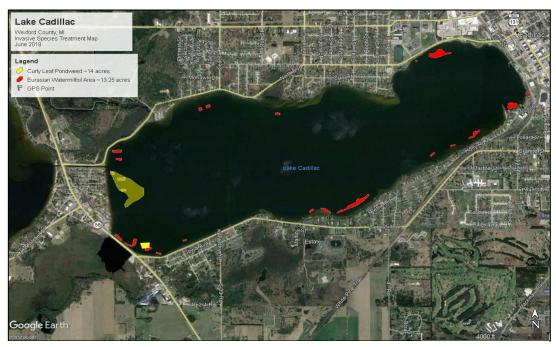


Figure 7. Dense EWM in Lake Cadillac (May 30, 2019).

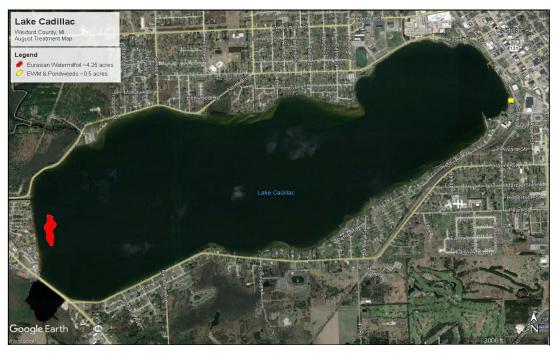


Figure 8. Late season EWM growth in Lake Cadillac (August 12, 2019).

Table 9. Lake Cadillac invasive aquatic plant treatment history to date (2006-2019). Note: RLS did not have access to the 2016 treatment acreage.

Year	Acres Treated with	# Milfoil Weevils
	Aquatic Herbicides	Stocked
2006	180	12,000
2007	50	12,000
2008	47	6,000
2009	143	12,000
2010	160	0
2011	113	0
2012	140	0
2013	101	0
2014	89	0
2015	97	0
2016	?	0
2017	23.5	0
2018	23.5	0
2019	18.1	0

# Section

## Lake Cadillac Sediment Data: Benthic Macroinvertebrates and Sediment Organic Matter

RLS scientists collected sediment samples at the three deep basins of Lake Cadillac on May 30, 2019 and August 12, 2019 with the use of an Ekman hand dredge to establish the current sediment macroinvertebrate communities as a measure of lake health. In addition to the three deep basin locations, a total of ten additional sediment samples were collected on August 12, 2019 and analyzed for sediment organic matter. Table 10 below shows the laboratory data for these sediment samples. Tables 11-12 list all of the aquatic macroinvertebrates found during the sampling. In general, sediment organic matter was moderate, dissolved oxygen was low at the bottom, and the biodiversity of sediment macroinvertebrates was fair with some improvement over the past few years with the occurrence of mayfly larvae.

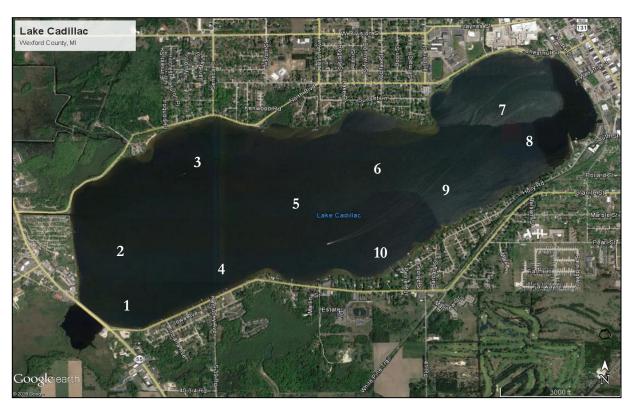


Figure 9. Sediment sampling sites in Lake Cadillac (May 30, 2019).

Table 10. Lake Cadillac sediment nutrient sampling data (August 12, 2019).

Sampling Site	Sediment % Organic Matter	Dissolved Oxygen at depth (mg/l)	
1	20	5.5	
2	25	7.3	
3	30	4.0	
4	10	1.9	
5	17	1.9	
6	22	4.1	
7	11	3.0	
8	16	4.2	
9	28	2.4	
10	19	2.9	

Freshwater macroinvertebrates are ubiquitous, as even the most impacted lake contains some representatives of this diverse and ecologically important group of organisms. Benthic macroinvertebrates are key components of lake food webs both in terms of total biomass and in the important ecological role that they play in the processing of energy. Others are important predators, graze alga on rocks and logs, and are important food sources (biomass) for fish. The removal of macroinvertebrates has been shown to impact fish populations and total species richness of an entire lake or stream food web (Lenat and Barbour 1994). In the food webs of lakes, benthic macroinvertebrates have an intermediate position between primary producers and higher trophic levels (as fish) on the other side. Hence, they play an essential role in key ecosystem processes (food chain dynamics, productivity, nutrient cycling and decomposition). These may also include many rare species.

The macroinvertebrates found in Lake Cadillac had very low counts of each macroinvertebrate and were very low biodiversity in 2018 but more biodiversity in 2019 along with the presence of mayfly larvae. Most of the taxa found were indicative of fair to good water quality.

Taxa found included midge larvae (Chironomindae), wheel snails (Planorbidae), water mites (Hydrachnellae), glassworms (Chaoboridae), banded Mystery snails (Viviparidae), sow bugs (Oniscoidea), and caddis larvae (Odontoceridae). In addition, there were many Zebra Mussels (Dreisseniidae) found. Of all the species found, all were native except for the Zebra Mussels. While the majority of the species were native, some are located universally in low quality and high-quality water. The midge larvae family Chironomidae can be found in both high- and low-quality water (Lenat and Barbour 1994).

Native lake macroinvertebrate communities can and have been impacted by exotic and invasive species. A study by Stewart and Haynes (1994) examined changes in benthic macroinvertebrate community in southwestern Lake Ontario following the invasion of Zebra and Quagga Mussels (*Dreissena spp.*). They found that *Dreissena* had replaced a species of freshwater shrimp as the dominant species. However, they also found that additional macroinvertebrates actually increased in the ten-year study, although some species were considered more pollution-tolerant than others. This increase was thought to have been due to an increase in *Dreissena* colonies increasing additional habitat for other macroinvertebrates.

In addition to exotic and invasive macroinvertebrate species, macroinvertebrate assemblages can be affected by land-use. Stewart et *al.* (2000) showed that macroinvertebrates were negatively affected by surrounding land-use. They also indicated that noted these land-use practices are important to restoration and management and of lakes. Schreiber et *al.*, (2003) stated that disturbance and anthropogenic land use changes are usually considered to be key factors facilitating biological invasions.

#### References:

- Lenat, D.R. and M.T. Barbour. Using benthic macroinvertebrate community structure for rapid, cost-effective, water quality monitoring: rapid bio assessment.

  Biological monitoring of aquatic systems. Lewis Publishers, Boca Raton, Florida (1994): 187-215.
- Schreiber, E.S.G., Quinn, G.P. and P.S. Lake. 2003. Distribution of an alien aquatic snail in relation to flow variability, human activities and water quality. Freshwater Biology Vol 48:6, pages 951-961.
- Stewart, T.W. and J.M. Haynes. 1994. Benthic macroinvertebrate communities of southwestern Lake Ontario following invasion of *Dreissena*. *Journal of Great Lakes Research* Vol 20(2):479-493.
- Stewart, P.M., Butcher, J.T. and T.O. Swinford. 2000. Land use, habitat, and water quality effects on macroinvertebrate communities in three watersheds of a Lake Michigan associated marsh system. Aquatic Ecosystem Health & Management Vol. 3.

Table 11. Lake Cadillac sediment macroinvertebrate sampling data (May 30, 2019).

Sample DB 1	Grab	Order	Family/Genus	Number	Common name
		Gastropoda	Lymnaeidae	2	Pond snails
		Diptera	Chironomidae	13	Midge larvae
		Ephemeroptera	Ephemeridae	6	Mayfly larvae
			Total	21	
Sample DB 2	Grab	Order	Family/Genus	Number	Common Name
		Gastropoda	Planorbidae	14	Wheel snails
		Isopoda	Asellidae	11	Sow bugs
			Total	25	
Sample DB 3			Planorbidae	8	Wheel snails
		Ephemeroptera	Ephemeridae	4	Mayfly larvae
	-	Isopoda	Asellidae	2	Sow bugs
			Total	14	

Table 12. Lake Cadillac sediment macroinvertebrate sampling data (August 12, 2019).

Sample					Common
DB 1	Grab	Order	Family/Genus	Number	name
		Diptera	Chironomidae	16	Midge
					larvae
		Ephemeroptera	Ephemeridae	7	Mayfly
					larvae
		Gastropoda	Planorbidae	4	Wheel
					snails
			Total	27	
Sample					Common
DB 2	Grab	Order	Family/Genus	Number	Name
		Gastropoda	Planorbidae	9	Wheel
					snails
		Gastropoda	Lymnaeidae	12	Pond snails
		Ephemeroptera	Ephemeridae	6	Mayfly
					larvae
		Diptera	Chironomidae	3	Midge
					larvae
			Total	30	
Sample		Isopoda	Asellidae	15	Sow bugs
DB 3					
		Gastropoda	Planorbidae	9	Wheel
					snails
			Total	24	

# Section

#### **Management Recommendations for 2020**

#### 1. Aquatic Vegetation Surveys:

Continuous aquatic vegetation surveys are needed to determine the precise locations of Eurasian Watermilfoil (EWM) Curly-leaf Pondweed (CLP), or other problematic invasives in or around Lake Cadillac. Typically, only EWM would be treated unless the CLP is a severe navigational impedance. These surveys should include a whole lake inventory in late May to mid-June and again later in the season. In addition, partial surveys post-treatment as needed in 2020. Scientists from RLS will be present to oversee all aquatic herbicide treatments in 2020 as in previous years. Treatment results will then be compared with previous years in the 2020 annual lake report.

#### 2. Aquatic Herbicide Treatments:

Due to the relative scarcity of native aquatic vegetation (for the lake size) in Lake Cadillac, the treatment of these species with aquatic herbicides is not recommended and recolonization of the lake by these species is a major goal for the health of Lake Cadillac. Reduction in blue-green algae throughout the lake should also assist with this re-colonization as the plants will have more access to light for continued growth. The plan for 2020 includes the use of high doses of systemic aquatic herbicides (such as triclopyr nearshore and 2, 4-D offshore) for the hybrid milfoil that may be present. Doses will be dependent upon the MDEQ permit requirements as well as the size and density of the weed beds.

#### 3. Lake Water Quality Monitoring:

Water quality parameters will also be monitored in Lake Cadillac for 2020 as in previous years and graphed with historical data to observe long-term trends. At least 3 seasons of data are needed to create meaningful trend graphs so that will be developed in 2020. RLS is in the process of gathering additional historical data and comparing units of measure to assist with the goal of graphing the data for each water quality parameter to determine these trends. In addition, water quality from the in-flow areas may also be sampled if running and an independent sample can be collected. RLS will use that data to make any necessary recommendations for additional BMPs (best management practices) if needed.

#### 4. Goose Control:

As in recent years, during the 2019 season, RLS noted that there is an abundance of geese around the parks on Lake Cadillac (Figure 10). A study by Manny et *al.* (1994) found that the annual contribution of carbon, nitrogen, and phosphorus from migratory waterfowl including Canada geese (*Branta canadensis*) can exceed the external loading contributions on some inland lakes. Thus, an overabundance of geese can lead to increased nutrient loads to Lake Cadillac. Fortunately, there are some strategies for reducing geese populations which include but are not limited to the following:

- 1. Encourage riparians to grow waterfront grass to ≥ 3 inches tall as geese prefer short grass.
- 2. Plant tall native plants near the shore to encourage a soft shoreline that geese may avoid due to the potential of predators hiding in the tall weeds.
- 3. Avoid mowing to the water's edge.
- 4. Do not feed geese or waterfowl as this encourages their presence.
- 5. Egg replacement, goose round-up, and nest destruction methods are effective to a degree but require an MDNR permit and training.
- 6. Coyote or other intimidating effigies can scare geese away from lawns.
- 7. The Audubon Society recommends placement of string 6 inches above the ground followed by another row of string an additional 6 inches above the water.
- 8. Visit the following website for more methods: http://icwdm.org/handbook/Birds/CanadadGeese/Default.aspx

Reference: Manny B.A., Johnson W.C., Wetzel R.G. (1994) Nutrient additions by waterfowl to lakes and reservoirs: predicting their effects on productivity and water quality. In: Kerekes J.J. (eds) Aquatic Birds in the Trophic Web of Lakes. Developments in Hydrobiology, vol 96. Springer, Dordrecht.

Reference: Canada Goose Management Website. University of Nebraska-Lincoln, NRES 348 Wildlife Damage Management class, Spring Semester, 2010. Scott Hygnstrom, Instructor; Stephen Vantassel, Webmaster.



Figure 10. An over-abundance of Canada geese near the shore of Lake Cadillac during the 2017-2019 season.

#### 5. Stormwater Monitoring/Nutrient Loading:

RLS recommends meeting with the City of Cadillac to mutually determine the possibility of storm drain sampling to determine whether they are contributing to the nutrient loading of Lake Cadillac. RLS obtained a map of the storm drains from the City of Cadillac and has prioritized some areas due to the area that they drain which contributes a higher volume of water to the lake. These drains should be studied prior to the implementation of any whole-lake within-basin improvements that may be costly (i.e. technologies to reduce blue-green algal blooms in the lake). RLS will meet with the City of Cadillac to discuss these priority areas and create a sampling plan.

#### 6. Lake Cadillac Educational Community Workshop Recommended in 2020:

A Lakes Cadillac and Lake Mitchell Informational Open House was previously held on September 10, 2018 at the City of Cadillac Fire Hall in the City Municipal Complex from 4-7 pm. The educational event hosted several informational booths including the lake consultant (RLS), the herbicide treatment company (PLM), the MDNR, MDEQ, MSU Extension, the Wexford County Drain Commissioners, and the North Country CISMA Program. Riparian BMP's and lake protection methods were openly discussed with residents on both lakes. Another community workshop is recommended in 2020 which includes the latest lake information and useful tips for riparians to better care for the lake.

#### Glossary of Scientific Terms used in this Report

- Biodiversity- The relative abundance or amount of unique and different biological life forms found in a given aquatic ecosystem. A more diverse ecosystem will have many different life forms such as species.
- 2) CaCO<sub>3</sub>- The molecular acronym for calcium carbonate; also referred to as "marl" or mineral sediment content.
- 3) Eutrophic- Meaning "nutrient-rich" refers to a lake condition that consists of high nutrients in the water column, low water clarity, and an over-abundance of algae and aquatic plants.
- 4) Mesotrophic- Meaning "moderate nutrients" refers to a lake with a moderate quantity of nutrients that allows the lake to have some eutrophic qualities while still having some nutrient-poor characteristics
- 5) Oligotrophic- Meaning "low in nutrients or nutrient-poor" refers to a lake with minimal nutrients to allow for only scarce growth of aquatic plant and algae life. Also associated with very clear waters.
- 6) Sedimentary Deposits- refers to the type of lake bottom sediments that are present. In some lakes, gravel and sand are prevalent. In others, organic muck, peat, and silt are more common.

#### **Council Communication**

*Re:* 2020/2021 Road Salt

For many years, the City of Cadillac has participated with the State of Michigan's Delivering Extended Agreements Locally (MiDEAL) program to competitively bid road salt. Cadillac joins the State and over 150 other communities in utilizing this bidding process to achieve cost savings through the economies of scale inherent in the process.

Orders for road salt are placed in the spring of each year. The State's contract is finalized by late summer, and early shipments typically arrive in late fall. Based on seasonal requirements, the City expects to need approximately 2,000 tons of road salt to cover the entire winter. Depending on the final bid award, annual costs are expected to total about \$150,000 (~\$75/ton).

#### **Recommended Action**

Because of the economies of scale achieved through the process, it is recommended that Council, pursuant to Section 2-299 and 2-312 of the City Code, authorize the City to participate in the MiDEAL competitive bidding process and approve the commitment to purchase up to 2,000 tons of seasonal road salt through the resulting State of Michigan contract at the unit cost bid approved by the State of Michigan. Funds are available in the Stores and Garage Fund for this purchase. Actual costs of usage are charged to appropriate activities within the Major and Local Street Funds and several other City activities based upon actual usage throughout the winter.

#### **WEXFORD COUNTY AIRPORT AUTHORITY**

#### **MINUTES**

#### Meeting of Wednesday November 12, 2019

1. Meeting was called to order at 6:00 by Hill

Present: Osborn, King, Paquin, Barron and Paul

Absent: Holder

Also present: Manager Bob Johnson Lucinda Rathbun (record minutes)

2. Introduction of Guests: Bob Clark

3. Public Comment- None

4. Additions or Deletions to the Agenda:

10. b Discussion regarding financial statements

5. Approval of October 2019 Minute

October minutes were presented.

Paul asked if the approved motion from October 2019 meeting during Treasurer's Report was completed. WCAA authorized and requested Treasurer or Manager to meet with Mike Cool from Baird, Cotter & Bishop.

Question unanswered. Holder absent. Manager reported that he did not meet with Mike Cool.

### MOTION by Holder to approve November 2019 Minutes Supported by King. All in Favor. Motion carried.

6. Treasurer's Report

No Report given; Treasurer Holden absent.

- 7. Committee Reports
- a. Finance Committee-Submitted sample of new budget report format to make available budgeted balance clearer. In addition to the new budget report there will be an actual expense report.
  - b. Personnel Committee-did not meet
  - c. Facilities Committee-did not meet
  - d. By-Law Committee-did not meet
- 8. President's Report

Lost runway lights this past Friday or Saturday. The conduit was only 2 inches below and it was struck by the plow truck. This will be fixed in the Spring and included in the MAP funding plan.

#### 9. Manager's Report

Written report submitted. New air compressor purchased for \$949.00 which was \$292.98 lower expense thanks to Bob Keith finding it at a lower price.

#### Noted: Hill turned meeting over to Osborn during his absence.

- 10. New Business
  - a. New Budget Approval

New format reviewed only.

b. Discussion regarding financial statements.

Bill Paul presented written report about our financial statements.

Discussion continued regarding cost for preparation of financial statements. No information provided by Manager nor absent Treasurer regarding recommendation from Mike Cool at Baird, Cotter & Bishop.

MOTION by Paul to Combine the operating fund and the T-Hanger Fund into one General Fund that will be accounted for as a proprietary fund type. Support by Osborn. All in Favor. Motion carried.

- 11. Old Business-None
- 12. Public Comment-None
- 13. Board Member Comments-

Paul -evaluations for employees and job descriptions to be updated in the Airport Employee Handbook. Paul recommends that Facilities Committee review hanger rent money for consistency and a long term look at revenues. Paul welcomes time to talk with the Facilities Committee to discuss concerns.

Osborn-Cadillac Aircraft rent needs to be reviewed by Facilities Committee. Osborn advised that the City has a personnel handbook available as a resource.

- 14. Next Meeting date is Wednesday December 11, 2019 at 6:00 PM
- 15. Adjournment

MOTION by King to adjourn at 7:37 PM. Supported by Barron. All in Favor. Motion carried.

Prepared by Lucinda Rathbun

Lucinda Rathbun

#### WEXFORD COUNTY AIRPORT AUTHORITY

#### **MINUTES**

#### Meeting of Wednesday December 11, 2019

1. Meeting was called to order at 6:00 PM by Hill.

Present: Hill, Osborn, Barron, King, Paul & Holder

Absent: Paquin

Also, present: Manager Bob Johnson Lucinda Rathbun (record minutes)

- 2. Introduction of Guests: Brian Potter, Representing Wexford County
- 3. Public Comment: None
- 4. Additions or Deletions to the Agenda: None
- 10. a. Lauren from Baird, Cotter & Bishop

Treasurer Holder asking Baird, Cotter & Bishop (BCB) for clarification about the budget process. WCAA has received two letters from the state listing deficiencies. One letter has been addressed the other letter is in the process of being addressed. BCB assisted with response to the second letter. Opened to the Board for discussion.

#### Issues addressed:

Lack of segregation and deficiency issues

Treasurer and Airport Staff is working with Clark from Cadillac Accounting to help alleviate some of the concerns.

Clark can help with journal entries especially for non-cash items which Clark is doing the journal entries Long Term Lease reviewed and correct information needs to be given to the auditors

Just one fund for the year 2020 per last months carried Motion joining the funds into one proprietary account

T Hangar Fund is a proprietary fund: One fund will eliminate pages 1 and 2 of the Financial Statement Holder addressed specific entries with Lauren from BCB

BCB rate is \$120 per hour

Need to utilize Clark more or contact Mike Smith who is familiar with governmental audit and is familiar with the Airport record keeping

Credit Card Receivable/Accounts Receivable/Undeposited Funds need to be reconciled **BEFORE** audit Petty Cash tracking has been addressed

Budget Process: Beginning fund balance needs to cover any loss that show

Proprietary Fund has different audit reporting requirements

Budget amendment clarification discussed. Any amendments should have board approval

5-year plan could be another line item .... i.e. grant revenue and grant expense

Budget not necessary for audit of proprietary fund

Need to add line item for Revenue Capital

#### 5.. Approval of November 2019 Meeting Minutes

### MOTION BY HOLDER TO APPROVE NOVEMBER 2019 MEETING MINTUES. SUPPORT BY KING. ALL IN FAVOR. MOTION CARRIED.

#### 6. Treasurer's Report

To be addressed under 10 b.

#### 7. Committee Reports

- a. Finance Committee-did not meet
- b. Personnel Committee-did not meet
- c. Facilities Committee-did not meet
- d. By-Law Committee-did not meet

#### 8. President's Report- 5-year block grant

Met with the State and the Engineers. Presented Capital Improvement Program. Have to advertise for an engineer as required every 5 years.

#### 9. Manager's Report

Written report presented.

Truck needed new alternator which was around \$1100.00.

Lunch for tenants tomorrow and all board members invited.

#### 10. New Business

- a. Lauren from BCB- addressed after Public Comment
- b. New Budget Approval

Proposed Budget Report reviewed

Discussed Capital Improvement Reporting

Discussed possible Indian Mounds on Airport property

Runway expansion; stabilize threshold on 2-5 can not be part of ACIP Grant Program

Power Company put in paperwork to have a crane at the end of runway to do some work for 6 months; they are replacing poles

Discussed Land acquisitions around the airport; looking to future planning

Future needs balanced with current operational costs addressed

Budget amendments to be done each quarter by the Board

Budget process should be done by December; aiming for October with Board vote November

County would like budget around August and City is February/March which could be projections based upon history

Might need capital improvement fund line item outside Grant Program line item

Need to maintain fund balance to cover shortages

Need line item for capital revenue and line item for matching expenses

### MOTION BY OSBORN TO ACCEPT BUDGET AS PRESENTED AND AS AMENDED. SUPPORTED BY PAUL. ALL IN FAVOR. MOTION CARRIED.

- 11. Old Business None
- 12. Public Comment-None
- 13. Board Member Comments

Osborn- been a pleasure working with everybody. Hard to leave but looking forward to new adventure.

Barron- no comment

King-Thank you Fred for all your service to the Airport

Paul-Thank you Fred for all your help and you are a great man

Holder-Thank you Fred and wish everyone the best holiday season

Hill-Thank you Fred for everything and we welcome your visits. Merry Christmas and Happy New Year to everybody. Committees are set up for a reason. Any comments take that to the committee chairman. If any problem that has not been resolved, bring it to me, WCAA Chair.

- 14. Next Meeting date is January 8, 2020 at 6:00 PM
- 15. Adjournment

MOTION BY OSBORN TO ADJOURN AT 7:50 PM. SUPPORTED BY KING. ALL IN FAVOR. MOTION CARRIED.

Lucinda Rashbur

Prepared by Lucinda Rathbun