

LAC PELLETIER

LAKE CAPACITY STUDY

ABOUT THE PROJECT

With growing interest in residential development surrounding Lac Pelletier, it is important to consider potential impacts to the shoreline and water quality, boat use and capacity, natural resource protection, and future infrastructure needs. In 2022, the Rural Municipality of Lac Pelletier contracted Urban Systems to undertake a lake capacity study for Lac Pelletier. The purpose of the study was to assess the current ecological health, carrying capacity, current development areas, and future development areas. Field studies, data collection, and community engagement initiatives were undertaken throughout the spring, summer, and fall of 2022. In April 2023, Urban Systems provided the draft lake capacity study report to the Rural Municipality of Lac Pelletier. The report provides recommendations to guide decision makers on proposed future development and to support a balance between the preservation of the natural environment, economic growth, and development.

The project consisted of four phases which are summarized in this document along with high-level study findings. To review the full report, please contact the Rural Municipality of Lac Pelletier.





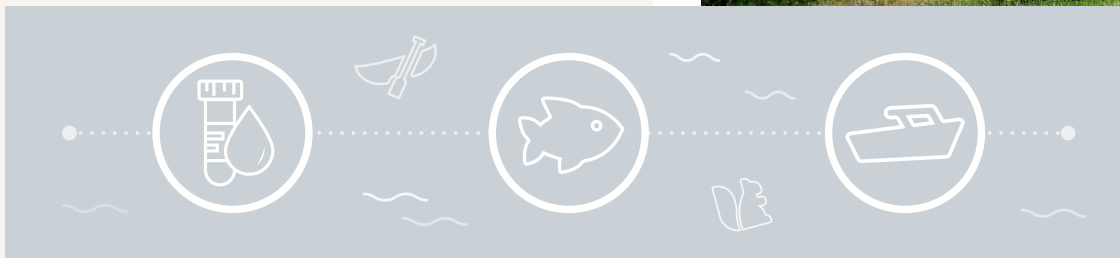
PHASE 2 - FIELD STUDY

To build upon information collected in Phase 1, field surveys were undertaken to conduct water quality sampling, habitat assessments, and boat capacity data collection.

Water quality sampling was done on four occasions over the period of a year. Monitoring was conducted at three sampling locations in the north, south, and middle of the lake. Based on preliminary data and observations the water quality rating for Lac Pelletier is good overall. The parameters of chloride, ammonia, PH, nitrate, nitrite, and dissolved oxygen fall within acceptable guideline criterion. It is important to note that, without other data to compare the results to it is impossible to determine if the lake is trending up or down in water quality.

PHASE 1 - TAKING STOCK

The first phase of the project focused on taking stock of available information about the lake to identify existing data and evaluate data gaps. The Rural Municipality of Lac Pelletier provided information on known habitat conditions, existing water quality data, details on local wastewater and solid waste management, roads, stormwater management, and other infrastructure data. Regional information was collected on historical meteorological and hydrological data, local watershed boundaries and potential wetland areas. A land use analysis was conducted using aerial imagery and mapping to estimate qualitative habitat cover types and land uses currently present within the study area.



The habitat field assessment was conducted on July 11, 2022, to confirm and refine the desktop observations. Ten habitat assessment sites were visited to gain an understanding of the general habitat characteristics that could then be applied to areas with similar landscape and vegetation community characteristics around the lake. Natural areas within the Study area can be generalized into four ecosite descriptions. Including PR1 Plains rough fescue – timber oatgrass grasslands: Fresh silty clay loam, PR5 Trembling aspen/beaked hazel/ sarsaparilla: Fresh silty clay, PR8 Balsam poplar – trembling aspen – green ash: Very moist silty clay loam, and PR9 Graminoid fen: very moist clay.

The boat count took place on Saturday, August 13, 2022, and included a morning count and afternoon count. The total number of boats located on the shoreline, docks, and boat lifts were recorded, including any watercraft stored on private property. This method gives insight to the potential active boat usage on the lake.

MORNING COUNT

🕒 6:30 AM

163
Boats

56
Sea-doo



Total Watercraft 219
Docked or parked on land

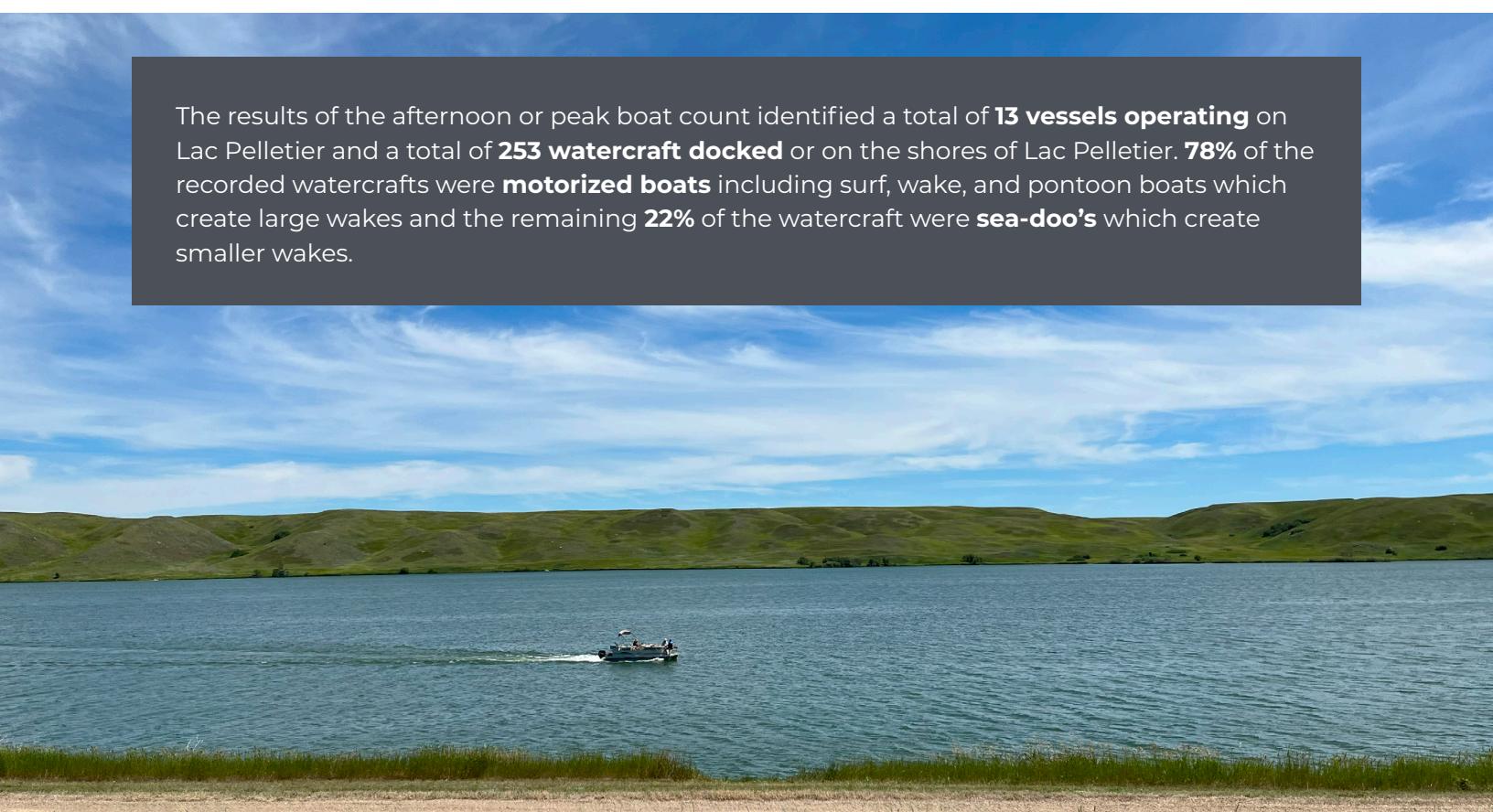
PEAK USAGE COUNT

🕒 3:00 PM

	Active	Docked	Parked on land
Boats	12	155	43
Sea-doo	1	55	0
Subtotal	13	210	43

Total Watercraft 266

The results of the afternoon or peak boat count identified a total of **13 vessels operating** on Lac Pelletier and a total of **253 watercraft docked** or on the shores of Lac Pelletier. **78%** of the recorded watercrafts were **motorized boats** including surf, wake, and pontoon boats which create large wakes and the remaining **22%** of the watercraft were **sea-doo's** which create smaller wakes.



PHASE 3 - PUBLIC ENGAGEMENT

A public survey was developed to engage with lake users and collect feedback. The Rural Municipality of Lac Pelletier distributed the survey via email to all rate payers and the Lac Pelletier Regional Park advertised the survey on social media to those utilizing the park. In conjunction with the survey, an in-person engagement session was held at Lac Pelletier on Saturday August 13, 2022. The purpose of the visit was to share information about the project, collect feedback, and promote the survey.



The survey was open for responses for the month of August 2022.



Of the 148 responses,

38%
had properties located within the Lac Pelletier Regional Park

62%
had properties within the Rural Municipality

Results from the survey revealed important information as to how the lake is being used, what land uses exist around the lake, and environmental concerns.



The survey respondents expressed concerns about future residential development around the lake, leading to increased boat traffic and potential negative impacts on water quality and the environment. Issues such as shoreline erosion caused by boat wakes and the overall environmental degradation of the lake due to increased lake use and boat traffic were highlighted. Safety concerns were also raised, particularly regarding boat speed, operator behavior, and the safety of smaller motorized and non-motorized watercrafts.

Survey respondents also shared concerns relating to lake pollution, dumping, erosion, flooding, destruction of wetlands, invasive species, and loss of animal habitat. The development of new residential areas and a manmade canal has negatively impacted the natural wetland and filtration system of the lake. The removal of natural vegetation for boat docks has further destroyed important riparian and marshy areas that provide habitat for various wildlife species. As a result, waterfowl nesting areas have been displaced, and there has been a decline in sightings of ducks, geese, and loons, along with an increase in the number of dead fish observed annually.



PHASE 4 - RECOMMENDATIONS AND GUIDELINES

In accordance with the community's vision, the data collected, and public engagement feedback, the following recommendations were prepared to guide the Rural Municipality of Lac Pelletier in making sustainable and informed decisions that positively affect people and the environment in the long-term. Recommendations are included on the following pages to further support responsible development surrounding Lac Pelletier.



LEGISLATION AND MANAGEMENT

Options and Considerations:

Identify lands that are prone to instability and flooding. Rezone these lands under the Environmental Conservation District.

Establish a Boat Traffic Code of Conduct for Lac Pelletier.

- Establish no motorized boating areas to respect environmentally sensitive areas and swimming and fishing areas.
- No-wake zone within a predetermined setback of the shoreline.

Consider developing specific guidelines and policy that outline specific data and surveys for development applications.

Establish criteria or policy for setback requirements from any waterbody, using a scientific approach based on soils, vegetation, slopes, and geotechnical. For an example see *Stepping Back from the Water: a Beneficial Management Practices Guide for New Development Near Waterbodies in Alberta's Settled Region (2012)*.

The development proponent shall submit all plans and drawings necessary to accurately represent the extent of site changes, including but not limited to, building locations, roads and parking, site servicing, grading, stormwater management, erosion and sediment control, and vegetation removal.

Establish standards for surveying and reporting on ecological conditions prior to development activity (i.e.: Ecological Impact Assessment).

RM zoning map (Inset A in Zoning Bylaw) be amended to identify the Lac Pelletier Regional Park area rather than having park lands fall under the RE district.

EDUCATION

Options and Considerations:

Promote a citizen led Watershed alliance group that can support opportunities to promote stewardship and deliver conservation information to permanent and seasonal lake users.

Continue and improve the use of social media, bulletins, and newsletters and local news of new or revised policy changes. A consistent communication section on lake usage such as good boating practices, erosion protection, improved landscape practices/designs that promote habitat restoration, and native plantings.

Highlight conservation areas around the lake to improve public understanding of the appropriate use of public lands.

Prepare a landowners manual that promotes awareness and provides tips and tricks to support how environmentally responsible maintenance of property can contribute to ecological and lake health.

Utilize funding sources for education programs through Provincial and Federal funding.



MONITORING AND COMPLIANCE

Options and Considerations:

Annually conduct an evaluation of local development policies, guidelines and permits.

Prepare guideline to promote annual inspections on infrastructure (Lagoon, waste transfer station, etc).

Consider a municipal requirement for confirmation of other jurisdictional regulatory approvals (I.e.: Fisheries Act) as part of their development permit and approvals process.

Site inspections at the final acceptance of development – vegetation re-establishment, setbacks, and as built surveys.

Site inspections during construction activities to ensure compliance of approvals and environmental protection measures have been implemented, monitored, and maintained.



ESTABLISHING CRITERIA AND BASELINES

Options and Considerations:

Develop an environmental framework plan or policy – set out terms of reference for a biophysical/ecological impact assessment with site specific surveys such as native and rare plant surveys, soil classification, wildlife and wetland classification.

Setback policy for waterbodies, wildlife corridors and other environmentally sensitive areas, and areas of potential or known contamination.

DESIGN CONSIDERATION

Options and Considerations:

Create density regulations to limit the number of lots that can be developed within Resort Residential areas.

Allow for conservation of publicly accessible waterfront.

Avoid development in areas susceptible to erodible soils and steep slopes.

Avoid the use of retaining walls below the high-water mark and introduce more natural landscape features including rocks and plantings set into a stable slope.

Development shall be designed at a level of density and site coverage compatible with the physical capabilities of the shoreland and water body.

Have a stormwater management plan prepared to address runoff, storage, and water quality.



REGIONAL

Options and Considerations:

Establish a regional watershed alliance group and engage and connect with other regional and local stewardship groups to share ideas, practices and educational resources.

Consider establishing Rangeland management initiatives with local agricultural producers to protect the watershed.

Create awareness of the value of restricting access of livestock to tributaries and wetlands. Providing off site watering options can allow for the establishment of enhanced riparian area services such as nutrient and water sequestration, reduced erosion and sediment transport, and increased biodiversity.