MIFL LLC
Madeline Island Ferry Line
Weather, Wind, and Ice Safety Standards for Ferry Operations
Prepared for Public Information and Passenger Safety Awareness
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MIFL makes cancellation and partial-cancellation decisions with one primary standard: passenger, crew, vehicle, vessel, and dock safety. A cancellation does not always mean that a ferry could not physically make one crossing at one specific moment. It means the forecasted or observed conditions are approaching a point where continuing scheduled passenger and vehicle service would reduce the safety margin below what MIFL is willing to accept.

The main factors we evaluate are wind speed, wind direction, wave development, dock exposure, visibility, air temperature, freezing spray, and ice movement. These factors are not considered separately but collectively. A wind speed that may be manageable from one direction can become hazardous from another direction because of fetch, which is the distance wind travels across open water before reaching the ferry route or dock. On our route, even a small change in wind direction can significantly change the fetch and the wave conditions that develop.

Northeast winds are one of our highest-concern directions because they have the longest fetch for our route across the channel. Once strong northeast winds persist, waves can build quickly and create difficult crossing and docking conditions. Southwest winds can also be severe, and sustained winds from almost any direction can become a problem if they last long enough. Even when wind speeds are lower than our highest-risk thresholds, long-duration winds can still build waves that affect safe landing, loading, and unloading.

As a general guide, sustained winds above 30 knots from any direction are closely evaluated. Northeast gusts near or above the mid-40 knot range are treated as a high-hazard condition, especially if waves have had time to build. These are not automatic cancellation numbers, but they are conditions that require serious operational review. Wave height depends not just on wind speed, but also on how long the wind has been blowing and how much open water the wind crosses before reaching the ferry route.

Conditions can also be very different between Bayfield, the crossing, and the Island dock. It may appear relatively calm at one dock while the other dock or the middle of the route is experiencing a very different marine environment. MIFL must make decisions based on the worst expected operating location, not just the location that looks calmest at the moment.

This is especially important because a ferry trip includes departure, crossing, landing, loading, unloading, and the return trip.

Docking is often one of the most important parts of the decision. Our docks are better protected from some wind directions than others. A strong southerly wind can create significant exposure at the Island dock. A strong easterly wind can create significant exposure at the Bayfield dock. In these conditions, the vessel can surge, roll, or ride against the dock in a way that makes loading and unloading vehicles or passengers unsafe, even if the crossing itself appears possible.

Winter conditions add another major layer of risk. When the air temperature is below freezing and the channel is not frozen, wind and waves can create freezing spray. Freezing spray can accumulate on decks, railings, ramps, lifesaving equipment, vehicles, working surfaces, and vessel structures. This is a serious safety issue. Ice on deck creates slip and fall hazards, makes line handling more dangerous, can interfere with ramps and emergency access, and can make normal vessel operations unsafe.

Accumulating ice is also a vessel stability concern. Ice adds weight, and much of that weight can collect high on the vessel or unevenly across exposed surfaces. Weight added high on a vessel can raise the center of gravity and reduce the vessel's stability margin. If ice builds unevenly, it can also contribute to list or increase rolling. This is why freezing spray is treated as more than an inconvenience. Once ice starts accumulating, the risk can increase quickly, especially in wind, waves, darkness, or continued exposure.

Vehicle movement is another serious consideration. MIFL vessels are designed to carry vehicles safely, but they are relatively short and wide ferry vessels operating in Lake Superior conditions. In certain sea states, that design can produce sharp rolling motion. Unsecured or shifting vehicle cargo is not an acceptable risk. Even a small vehicle shift can damage equipment, create a hazard for passengers and crew, or reduce the vessel's safety margin. A larger shift could create a severe or catastrophic situation. MIFL does not wait until that outcome is likely before stopping service.

Ice movement can also lead to cancellations or partial cancellations. Shifting ice can close in around a vessel, restrict maneuverability, or pinch a vessel in the channel. Ice conditions can change quickly with wind, current, and temperature. During the ice season, MIFL operates with two ice breakers. In February and March, those vessels may be among the only moving vessels on the entire lake. If one were damaged, disabled, or stuck, the result would not simply be a delayed trip. It could affect the entire transportation link and create a much larger safety and service problem.

Darkness makes these hazards more difficult to manage. At night, it is harder to see wave direction, spray accumulation, changing ice pressure, dock movement, and developing deck icing. Hazards that are manageable in daylight may become more severe when visibility is reduced. This is one reason winter night operations are evaluated more conservatively, especially during freezing weather, heavy seas, or moving ice.

When possible, MIFL tries to make cancellation decisions 24 to 48 hours in advance so residents, visitors, businesses, and crews can plan. The amount of notice depends on forecast certainty. Weather forecasting is not based on one perfect model. MIFL reviews more than five forecast models and multiple marine weather sources before making weather-based decisions. At times, one public weather source may show milder conditions while several other models are forecasting severe marine conditions. When that happens, MIFL must evaluate the full range of guidance, local experience, and the highest-risk scenario for the ferry route.

Forecasts can also change. If conditions improve sooner than expected, MIFL may resume service. If conditions worsen faster than expected, service may need to be reduced or stopped sooner. In general, it is safer to cancel early and restart when conditions allow than to continue operating until passengers, vehicles, or crew are stranded on the wrong side after conditions deteriorate.

MIFL understands that cancellations and delays create real hardship. We do not take them lightly. Our public data shows that full-day cancellations are uncommon compared with partial cancellations and warnings. That reflects our effort to provide service whenever it can be done safely. However, no amount of inconvenience, revenue loss, or schedule pressure justifies operating when the safety margin becomes unacceptable.

MIFL's cancellation decisions are made to prevent the worst-case outcome before it becomes likely. The goal is not only to complete the next trip. The goal is to complete every trip safely, protect passengers and crew, preserve the vessels and docks, and maintain reliable service for the community over the long term.