

November-January 2024 Northern Michigan Search Interest Forecast

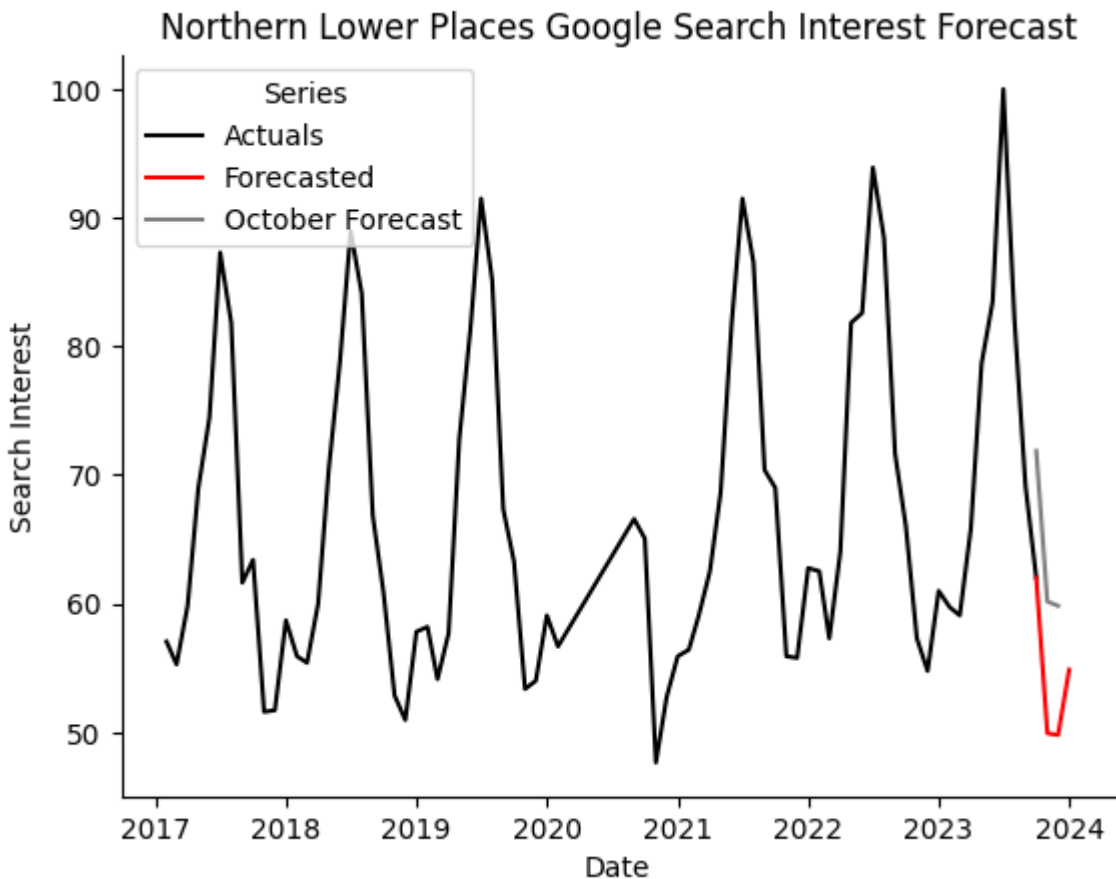
Author: Dan Shaffer

Below are the search interest forecasts for the combined Northern Lower and combined Upper Pensinsula places for November, December, and January 2024. Note that the possible range for historical search interest is normalized to a maximum of 100, but forecasts outside this range are permissible as these values are forecasted to be outside the historical range.

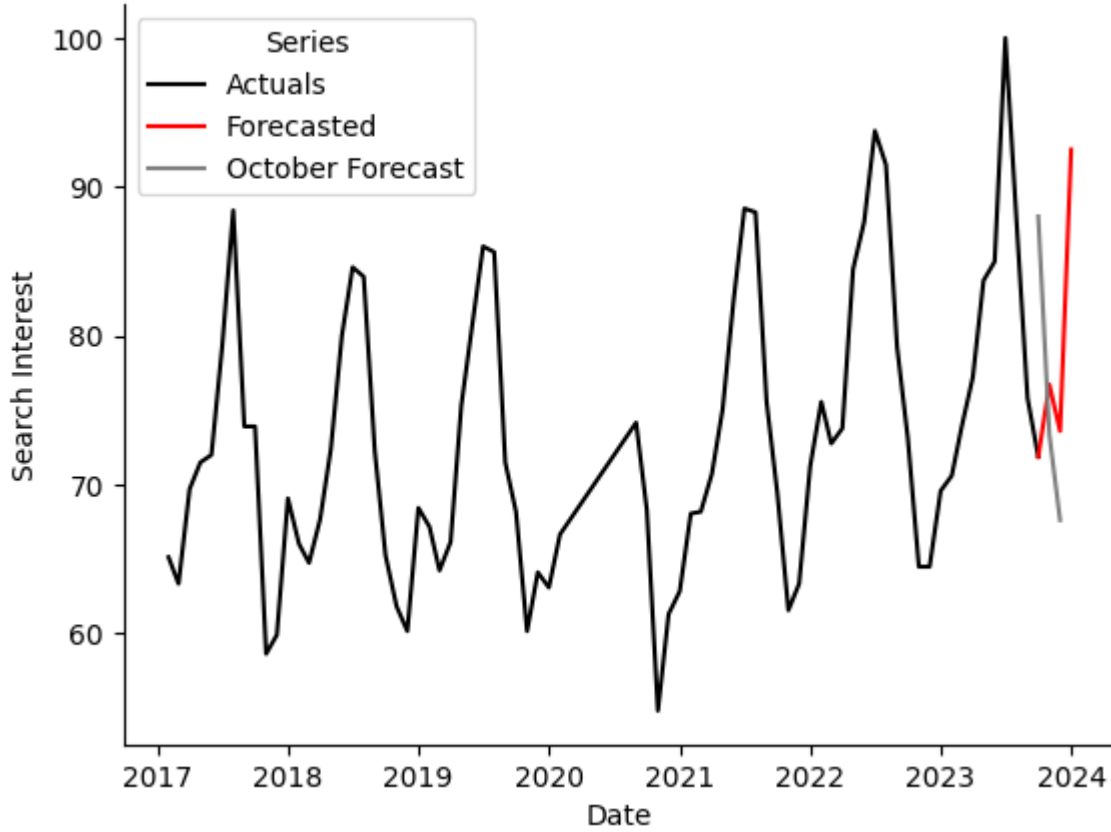
Also provided are barcharts comparing the average search interest for the forecast months (November, December, January) to the same months in previous years.

The forecast for the Upper Pensinsula is higher relative to past years while the Lower Pensinsula is slightly lower.

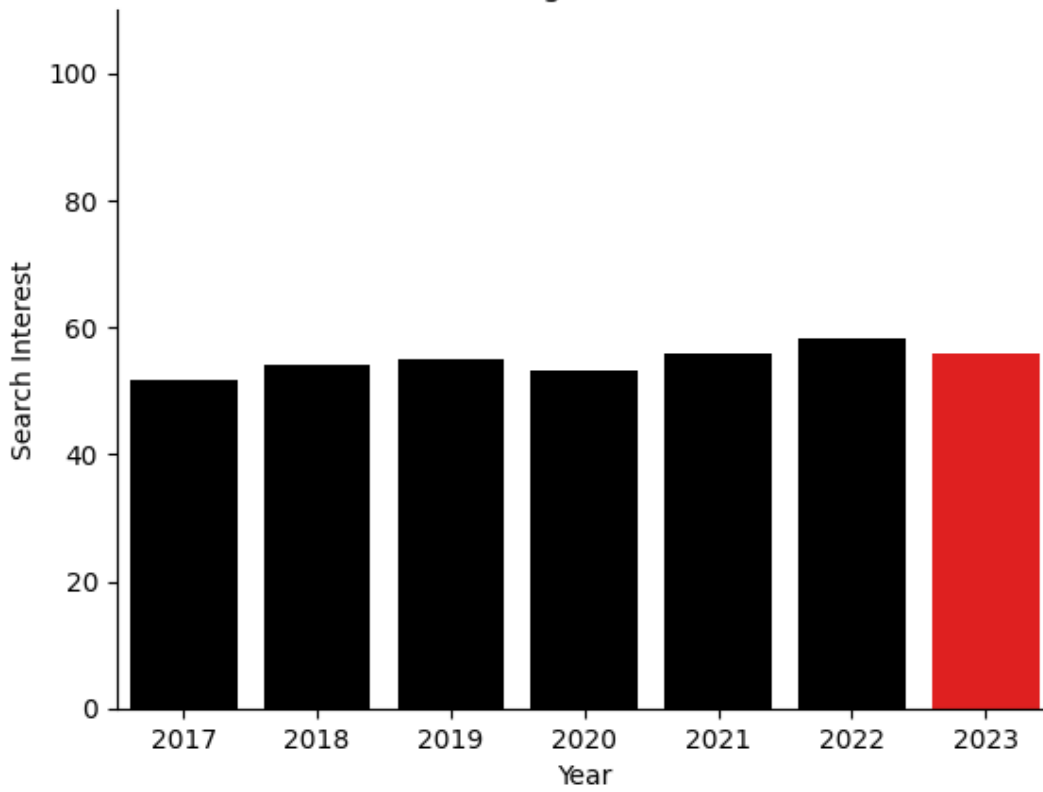
Also shown is the previous forecast from October. For the Lower Peninsula, this forecast was higher than the current forecast. For the Upper Peninsula, the November value was almost identical but the December value was lower.



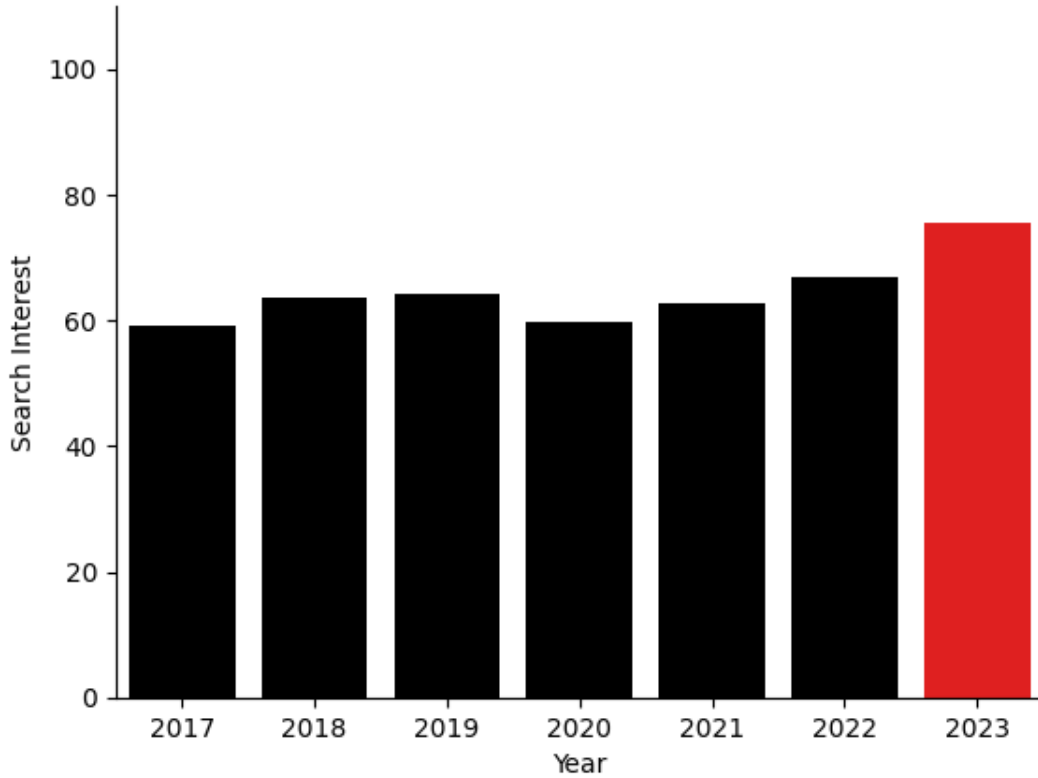
Upper Pensinsula Places Google Search Interest Forecast



Northern Lower Search Interest Averaged for November, December, and January



Upper Peninsula Search Interest Averaged for November, December, and January



The following table shows the top five places that are forecasted to have the highest search interest compared to the same time period in 2022. Lewiston is in the interior of the Northern Lower. Cross Village and Levering are near Mackinac City. Wakefield and Mass City are in the western portion of the Upper Peninsula.

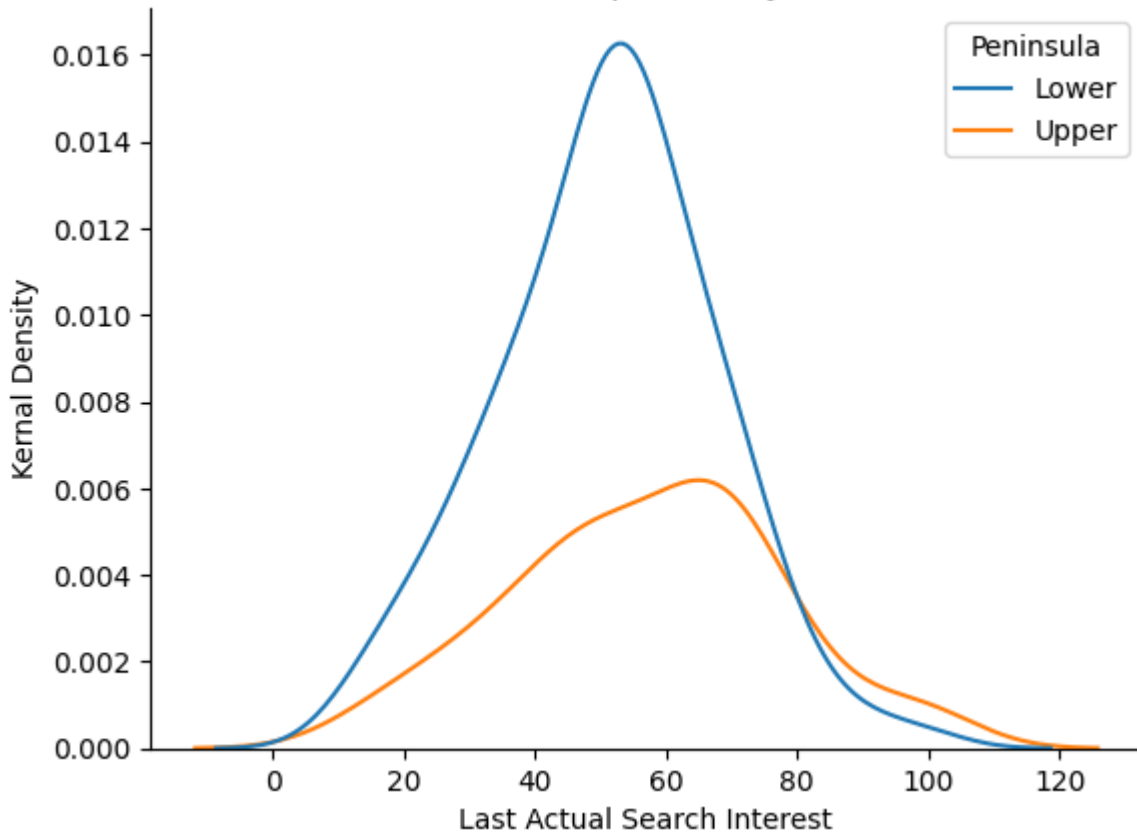
	Place	Peninsula	Difference
0	Lewiston	Lower	77.1
1	Wakefield	Upper	67.0
2	Cross Village	Lower	29.2
3	Levering	Lower	29.0
4	Mass City	Upper	27.5

Three things impact the value of the search interest forecasts for each place.

1. The last available monthly value: since models are differenced, it matters how high the last month's value is
2. Seasonality: if search interest is typically high during a month, it will be forecasted to be high again
3. Model difference: based on forecasted atypical weather and gas price changes, the model will predict the deviation from historical and seasonal values.

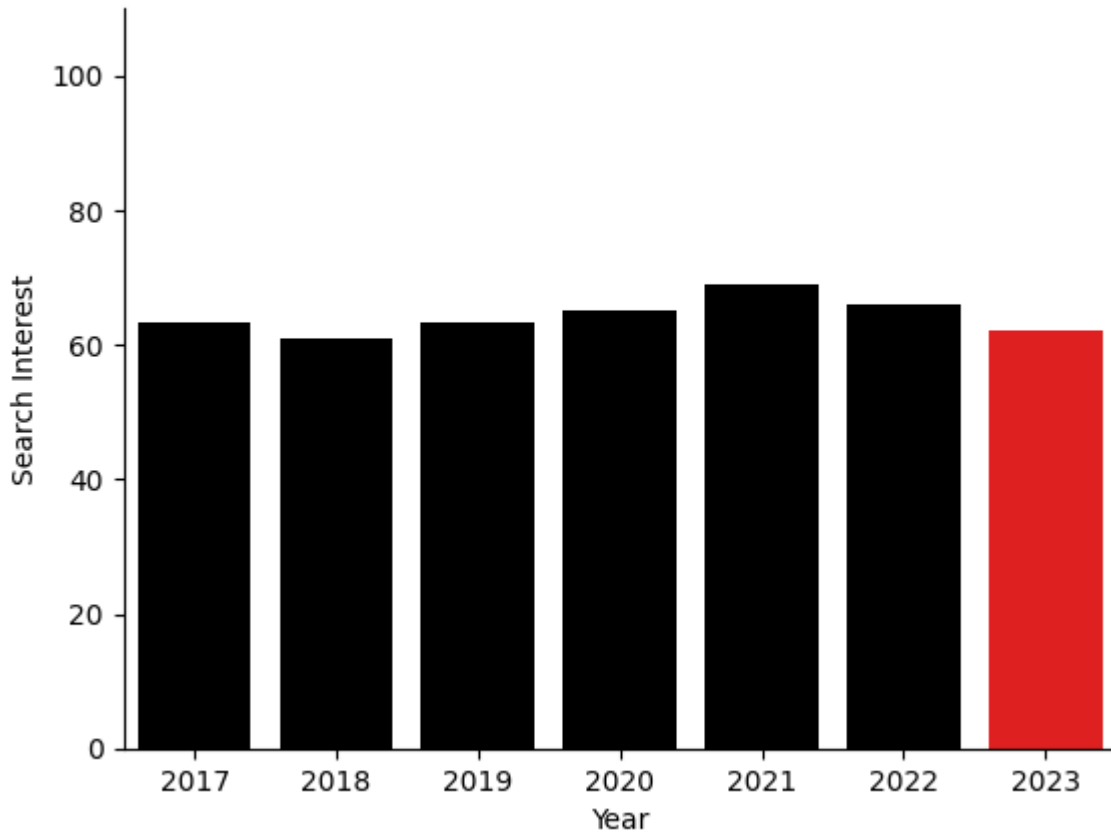
The following shows last actual values for October 2023 for search interest in the Lower and Upper Peninsula. The distribution of last actuals is higher for the Upper than the Lower Peninsula. Note that due to kernel smoothing the plot shows values outside of 0-100 which are the possible values.

Last Actual Comparison by Peninsula

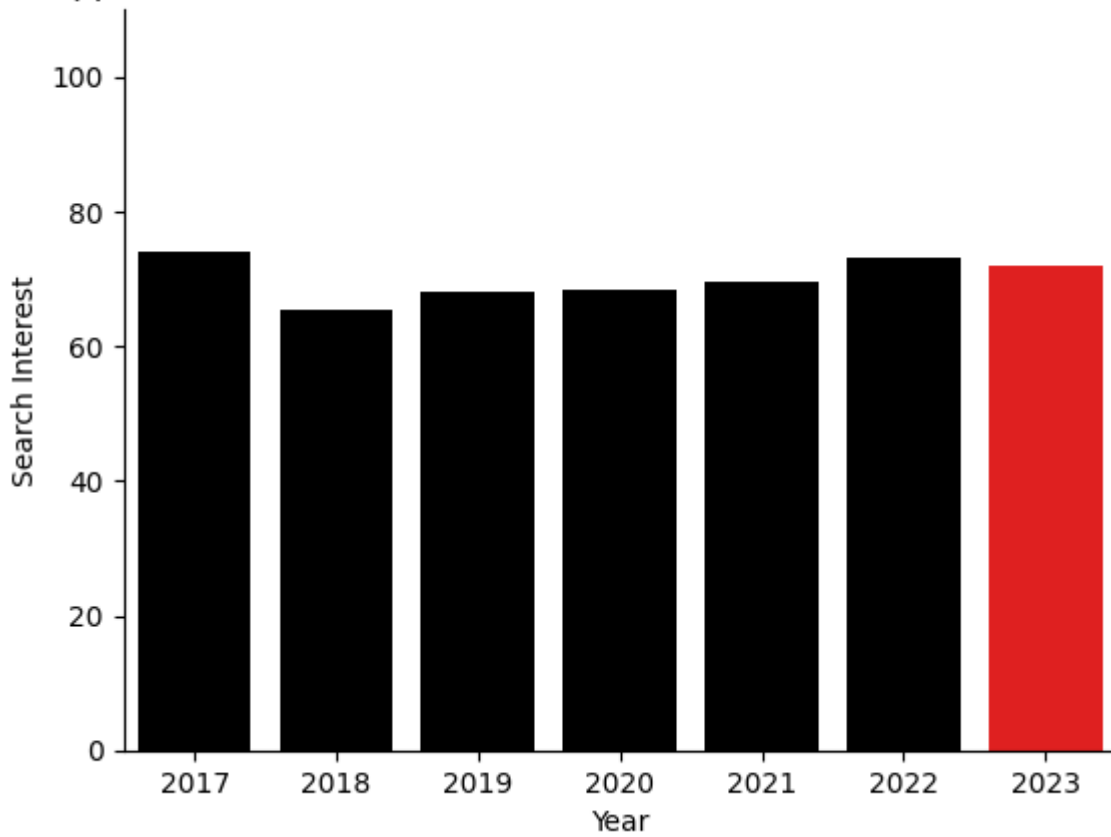


The last actuals used in the aggregate forecast are from the aggregate series. These charts compare the aggregate last actual for both peninsulas to previous values in October. For the Lower Peninsula, the last actual is relatively low compared to the last several years. For the Upper Peninsula, it is relatively high.

Northern Lower Last Actual Search Interest versus Previous Octobers

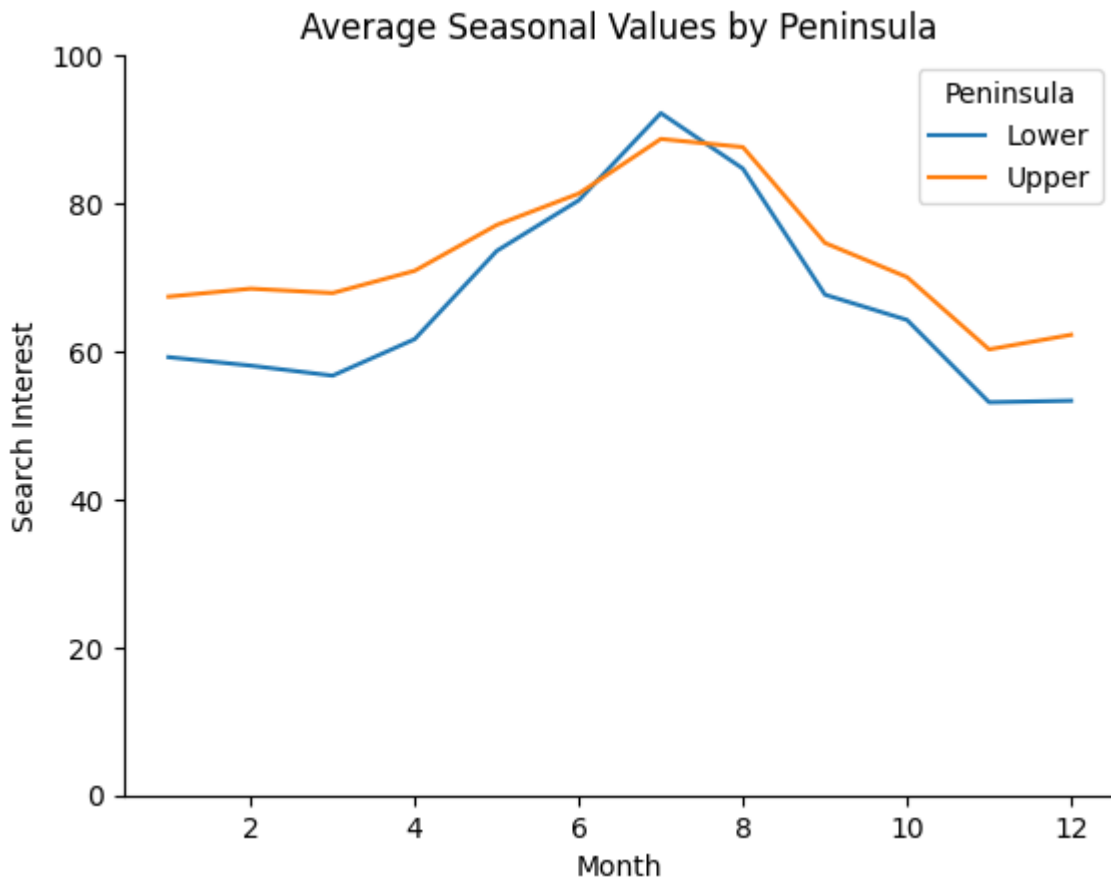


Upper Peninsula Last Actual Search Interest versus Previous October



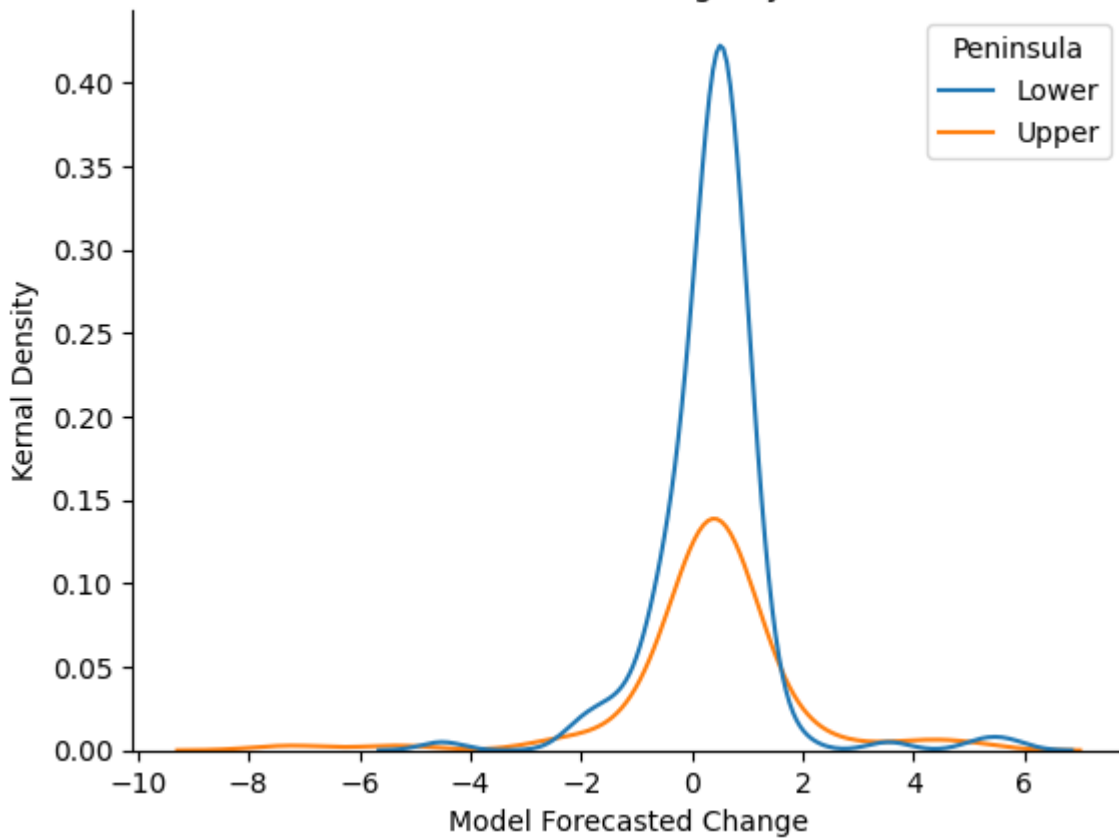
The following figure shows the aggregate average search interest for each month. Both the Upper and Lower Pensinsulas have a seasonal peak in July/August with the Lower Peninsula peak solidly in July. The Upper Peninsula values have higher values for January-March likely due to winter snow

sports like snowmobiling. For the November-January forecast period, we should expect some of the lowest search interest values.



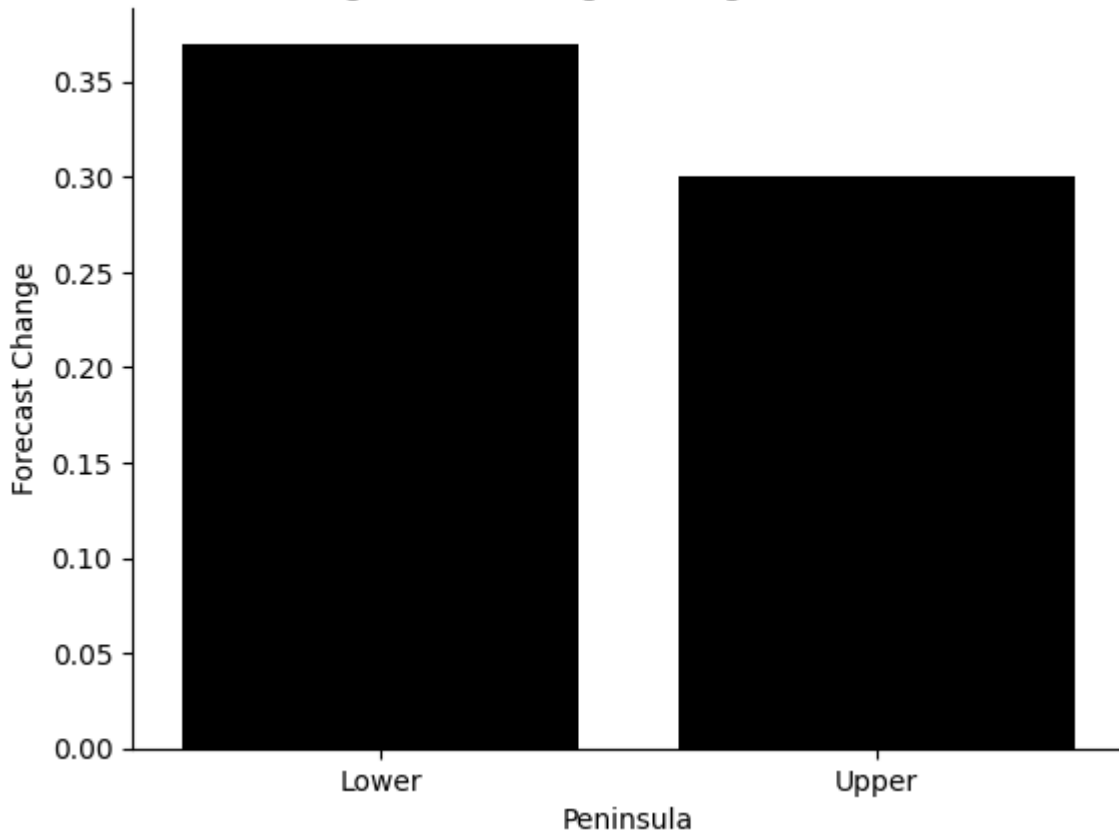
Finally, forecasts are determined by the forecasted change based on weather and gasoline prices. For both peninsulas, the most likely forecasted change is near zero.

Model Forecasted Change by Peninsula



The following chart shows the average of the changes over the forecast period for places in each peninsula. The average change for the Lower Peninsula is higher than the Upper Peninsula. However, in the next chart, these changes are weighted by their contribution to the aggregated peninsula forecasts. In this case, the Upper Peninsula is positive and the Lower Peninsula average is negative.

Average Place Change During Forecast Period



Average Place Change Weighted by Contribution to Peninsula Aggregate

