Getting to the Bottom of it: Holocene Climate Change in Keuka Lake Based on Sediment Cores
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Abstract
Keuka Lake of the Finger Lakes region of New York offers a continuous record of Holocene sedimentation since the last deglaciation. The depth of the lake has allowed for underwater sediment investigation and analysis of the record itself. Silt grain size data can be used to reconstruct changes in lake level, and bulk density data can be used to determine changes in lake productivity. The Keuka Lake record contains several events of Lake level and productivity changes that are reflective of changes in climate.

Introduction
This section describes the methods by which the Keuka Lake record was obtained and analyzed. The lake is a meromictic system, with a shallow hypolimnion that is seasonally isolated from the well-stirred epilimnion. The hypolimnion can be isolated from the surface by a halocline or a thermocline, depending on the season or the year. The lake is fed by several streams, which flow into the northern end of the lake, and outflow occurs from the southern end. The lake is a highly productive system, with a large biomass of zooplankton and fish. The lake is also a popular recreational area, with numerous boat ramps and docks.

Depositional Model
The lake is a highly productive system, with a large biomass of zooplankton and fish. The lake is also a popular recreational area, with numerous boat ramps and docks.

Field
Single-Tube piston core was retrieved from a depth of 10.2 meters below lake level. The core was 10 cm in diameter and 5.5 m long. The core was retrieved using a gravity corer, which was recovered from the lake bottom and brought to the surface. The core was then sealed inside a stainless steel tube.

Methods
Samples were collected from the core at 5 cm intervals, and analyzed for grain size, bulk density, and charcoal content. Carbonates were determined by loss on ignition, and organic content was determined by difference.

Results
Four periods of increased charcoal frequency were identified in the Keuka Lake core. Two of these events occurred during the early Holocene, and are associated with increased fire activity in the region. The other two events occurred during the late Holocene, and are associated with increased fire activity in the region. The charcoal content of the core is shown in Figure 1.

Conclusions
This work has shown that the Keuka Lake record can provide valuable information about Holocene climate and environmental change. The lake is a highly productive system, with a large biomass of zooplankton and fish. The lake is also a popular recreational area, with numerous boat ramps and docks.

Acknowledgements
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References Cited
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Figures
1. Depositional model of Lake Keuka. The lake is a meromictic system, with a shallow hypolimnion that is seasonally isolated from the well-stirred epilimnion. The lake is fed by several streams, which flow into the northern end of the lake, and outflow occurs from the southern end. The lake is a highly productive system, with a large biomass of zooplankton and fish. The lake is also a popular recreational area, with numerous boat ramps and docks.

Table
<table>
<thead>
<tr>
<th>Event</th>
<th>Age (YBP)</th>
<th>Charcoal Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event 1</td>
<td>10,000</td>
<td>Low</td>
</tr>
<tr>
<td>Event 2</td>
<td>6,000</td>
<td>High</td>
</tr>
<tr>
<td>Event 3</td>
<td>3,000</td>
<td>Low</td>
</tr>
<tr>
<td>Event 4</td>
<td>1,000</td>
<td>High</td>
</tr>
</tbody>
</table>

Figure 1: Depositional model of Lake Keuka. The lake is a meromictic system, with a shallow hypolimnion that is seasonally isolated from the well-stirred epilimnion. The lake is fed by several streams, which flow into the northern end of the lake, and outflow occurs from the southern end. The lake is a highly productive system, with a large biomass of zooplankton and fish. The lake is also a popular recreational area, with numerous boat ramps and docks.