Grounding line ridges, asymmetric with fans building out to east
Ontario Lobe of Laurentide Ice Sheet, upon recession

Proto Glacial Lake Iroquois
Cored with massive, compact diamicton in exposures of smaller ridges. Basal crevasse infills, following late stage surge of Ontario Lobe?
Side scan sonograms and 3.5 kHz echogram from the rhombohedral ridge pattern of the surge zone.
Stop 3: Rome Sand Plains, shooting range
Site 3: Rome Sand Plains, shooting range
Stop 4: Kame terrace upon which eolian dunes formed

Property of Mr. Alan King
4505 Route 49, Blossvale, New York
Sites 1 and 2a,b: Beach Ridges, south of Sylvan Beach, Verona Beach St. Park. Our Field stops here are 5. and 6.

Site 1:
- 12,864 +/- 85 cal yr BP
- *Sphaerium simile*

Site 2a:
- 12,890 +/- 50 cal yr BP
- *Helisoma campanulatum*

Site 2b:
- 13,000 +/- 40 cal yr BP
- *S. simile*
- 11,930 +/- 40 cal yr BP
- 11,118 +/- 40 cal yr BP
- *Helisoma campanulatum*

from Fadem (2001)
Site 1:

<table>
<thead>
<tr>
<th>Sample</th>
<th>Wt mean(Ka)</th>
<th>Mean(ka)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HESS 1</td>
<td>16 ± 1</td>
<td>15 ± 1</td>
</tr>
<tr>
<td>HESS 2</td>
<td>11 ± 1</td>
<td>12 ± 1</td>
</tr>
</tbody>
</table>

15 ka +/- 1
12 ka +/- 1

HESS 1

No of aliquots

HESS 2

No of aliquots
Examples of Ground Penetrating Radar Lines for Stop 5 (above) and west of Stop 6 (below). From Fadem, 2001.
Stop 6. Site 2: Gun Range, Verona Beach State Park

Eolian, dune sands

Radiocarbon dates

*Sphaerium simile* 10,990 +/- 40 ^14^C years BP
 calibrated = 13,000 cal. Yr BP
13,130-12,900 cal. Yr BP
13,130-12,930 cal Yr BP

Mean age and sd

OSL dates

10,300 +/- 800 Yr BP

11,600 +/- 1000 Yr BP

Beach, sandy gravels, shell rich

water table

\[ \delta^{13}C = -10.1 \% \text{ on carbonate} \]

from Fadem (2001)
Site 3: beach ridges, north of Sylvan Beach

No of aliquots

Ed(Gy)
Site 5D: Key units

- **Unit QFC-15**: cross laminated sand and silt with current ripple drifts, dipping SW
  - Radiocarbon ages: 6850, 6838, 6825, 6824, 6800, 6764 cal. yBP
- **Unit QFC-11**: laterally continuous peat unit
- **Unit QFC-19**: peat/muck unit

**Features of a Meandering System**

$q \propto$ meander width

Oldest fossil trees dated to 9,000 radiocarbon yrs!

**Radiocarbon ages for unit QFC-8**

- 6850, 6838, 6825, 6824, 6800, 6764 cal. yBP

**Measured section locations**

- Fish Creek site 5D
- Fish Creek site 2A

**Walker and Cant (1984)**

- QFC-8
- Desiccation
- Flood thalweg
- Vegetation
- Floodplain
- In-channel ripples
- Dunes
- Active lateral accretion
- System now abandoned
- Chute cut-off, gradual abandonment
- Chute bar
- Levee
- Ridge and swale
- Coarse sands
- Crevasse splays
- Active lateral accretion
- Floodbasin
- Vegetation
- Infilling - upward sequence
- Fining-downward sequence
- Older channel fill
- Older levee
- Current channel
- Active lateral accretion
- Floodplain
Interpretation of bottom features based upon preliminary assessment of seismic reflection data collected in summer of 2009.
Lowstand progradation of spits off of emergent islands

Cutting of lowstand terraces and wave cut benches
Submergence of clay rich facies into modern gyttja

drowned course of Fish Creek?

Messenger Shoal Island?

spits formed at lower lake levels

edge of wave cut terrace

sediment fans

wave delta of modern gyttja

depth: 12.3 m

Mud drape 1

Mud drape 2

a.

a.

a.'

north

south
Water Levels in the Great Lakes: A Cross-border Problem
Mike Lewis, Steve Blasco, et al.
Geological Survey of Canada

Basin wide lowstand
~9,000 yr BP

after 9000 cal BP
http://sst.rncan.gc.ca/ercc-rrcc/theme1/t9_e.php
Oblique view of wave dominated delta of Oneida Creek
Thanks to:

Katy Arnold
Cynthia Fadem
Elizabeth Hiscott
Jennifer Cleary
Manique Talia-Murray
Teddy Cleary
Anne Saltman
NYS-DEC
CNYRPDB
Scott Ingmire
Bruce Wegter

And

Rebecca Straw
Stacy Ng
Teddy Cleary
Manique Talia-Murray
Jennifer Cleary
Elizabeth Hiscott
Cynthia Fadem
Katy Arnold
<table>
<thead>
<tr>
<th>Sample Code</th>
<th>Sample Type</th>
<th>Sample</th>
<th>Shell Type</th>
<th>Age BP</th>
<th>Res. Age BP</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>11201-11165</td>
<td>11199-11168</td>
<td>11181</td>
<td>beach sand</td>
<td>9760 ± 40</td>
<td>11768</td>
<td>11930, 11804</td>
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<tr>
<td>12074-12093</td>
<td>12113-12170</td>
<td>12993</td>
<td>beach sand</td>
<td>10200 ± 40</td>
<td>12789</td>
<td>10660, 40</td>
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<tr>
<td>12903-12964</td>
<td>12993-12964</td>
<td>12889</td>
<td>beach sand</td>
<td>150 ± 30</td>
<td>12847</td>
<td>10730 ± 30</td>
</tr>
</tbody>
</table>

Table 4. Shells sample radiocarbon dates (referenced to 1950 AD).
## OSL Result of Oneida lake

<table>
<thead>
<tr>
<th>Sample Details</th>
<th>Dose(Gy)</th>
<th>Dose Rate(Gy/ka)</th>
<th>Age(ka)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample</td>
<td>Alt(m)</td>
<td>Depth(cm)</td>
<td>Wt_mean</td>
</tr>
<tr>
<td>HESS 1</td>
<td>118</td>
<td>94</td>
<td>11.4 ± 0.1</td>
</tr>
<tr>
<td>HESS 2</td>
<td>118</td>
<td>109</td>
<td>9.6 ± 0.2</td>
</tr>
<tr>
<td>HESS 3</td>
<td>126</td>
<td>132</td>
<td>9.6 ± 0.1</td>
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<tr>
<td>HESS 4</td>
<td>126</td>
<td>191</td>
<td>9.3 ± 0.1</td>
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<td>HESS 5</td>
<td>126</td>
<td>295</td>
<td>11.1 ± 0.1</td>
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<td>HESS 6</td>
<td>87</td>
<td>215</td>
<td>23.1 ± 0.1</td>
</tr>
<tr>
<td>HESS 7</td>
<td>87</td>
<td>320</td>
<td>24.4 ± 0.1</td>
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<td>HESS 8</td>
<td>87</td>
<td>420</td>
<td>22.9 ± 0.1</td>
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<td>HESS 9</td>
<td>59</td>
<td>30</td>
<td>5.1 ± 0.1</td>
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<tr>
<td>HESS 10</td>
<td>59</td>
<td>100</td>
<td>5.71 ± 0.0</td>
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