Selected Material from Other Earlier Papers and Reports
Earlier Support for the Important Role of Inorganic Tripton

“Limnological and statistical issues for monitoring the impact of a lake source cooling facility: Cayuga Lake, NY”

- “TP and SD compromised as trophic indicators for this system because of the contribution of tripton”
- potential impact analysis targets Chl instead
- PP:Chl ratio as a diagnostic
  - greater on shelf
  - greater contributions of tripton on shelf
Earlier Support for the Important Role of Inorganic Tripton

“Patterns and impacts of inorganic tripton in Cayuga Lake”

- TP and SD compromised as metrics of trophic state by inorganic tripton contributions
- early (1999 and 2000) direct measurements of inorganic particles $PAV_m$ (by SAX) defined later
- greater tripton levels on the shelf compared to pelagic
- speculation on high self flushing rate preventing locally high phytoplankton growth, and Chl, on shelf
Sediment Origins

Variations in sediment sources and yields in the Finger lakes and Catskill regions of New York


objective: quantify the proportional contributions of surface and bank erosion to sediment yield in streams of the southern Cayuga Lake Basin
Methods:

- Cayuga Lake tributaries
  - Cayuga Inlet
  - Fall Creek (plus Virgil Cr.)
  - Sixmile Creek
  - Salmon Creek
- $\text{Cs}^{137}$ as a tracer
## Results:

<table>
<thead>
<tr>
<th>Tributary</th>
<th>Physiographic Setting</th>
<th>% Sediment Loading from Bank Erosion</th>
<th>Yield (t kg(^{-2})/yr(^{-1}))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Six Mile</td>
<td>relatively extensive glaciolacustrine</td>
<td>76</td>
<td>203/138 (2000, 2001)</td>
</tr>
<tr>
<td>Fall Creek</td>
<td>relatively extensive glaciolacustrine</td>
<td>52</td>
<td>42 (Forest H.)</td>
</tr>
<tr>
<td>Cayuga Inlet</td>
<td>relatively extensive glaciolacustrine</td>
<td>76</td>
<td>--</td>
</tr>
<tr>
<td>Salmon Creek</td>
<td>limited glaciolacustrine</td>
<td>53</td>
<td>--</td>
</tr>
<tr>
<td>Virgil</td>
<td>limited glaciolacustrine</td>
<td>57</td>
<td></td>
</tr>
</tbody>
</table>

- bank erosion important
- management implications
Variability and Causes

- large differences in sediment yield between tributaries attributable to varying contributions from bank erosion
- current problems with excessive sedimentation in Cayuga Lake are in part a consequence of the elimination of extensive wetland, originally at the southern end
  - extensive channelization also, particularly the lower end of Cayuga inlet
Net Sedimentation in Southern Cayuga Lake

- long-term decreases in sediment loading observed in many streams/rivers nationally from changes in agriculture
- dating of lake cores (net sedimentation) do not support this for southern Cayuga Lake tributaries
- Yager (2001) sediment dating – multiple sites extending from the south to mid-lake
  - pre-settlement < 1mm yr\(^{-1}\) (radiocarbon)
  - 2.4 - 6 mm yr\(^{-1}\), from Pb\(_{210}\) (since 1900)
  - 2.4-8.1 mm yr\(^{-1}\), from Cs\(_{137}\) (since 1950)
- Hairston et al. (2001) – 5.8 mm yr\(^{-1}\) (1963-1994)