The project examines changes in the Pascagoula River and its tributaries in southeastern Mississippi. Changes are evaluated for a minimum of three periods including historic maps from 1945-51 (partial coverage), aerial photographs from 1955-68, maps from 1985-95, and digital orthophotographs from 1995-2005 using geographic information systems (GIS). Reaches with sand and gravel mining, either in the channel or adjacent floodplain, are designated as mined. Notable reaches include the Bolivar River, altered by direct mining of the channel bed and margins, and Thompson Creek, whose floodplain mining has facilitated channel change by pit diversions. Research on channel and bar morphometry and avulsion patterns indicates that channel instability is a consequence of mining activities and changes to the environment and river dynamics.

**STUDY AREA**

**METHODS AND RESULTS**

<table>
<thead>
<tr>
<th>Reaches</th>
<th>DIS</th>
<th>Mined</th>
<th>Stability/Instability Ratio</th>
<th>Stability/Instability Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thompson Creek</td>
<td>0.40</td>
<td>0.60</td>
<td>1.00</td>
<td>1.20</td>
</tr>
<tr>
<td>Leaf River</td>
<td>0.0</td>
<td>0.2</td>
<td>0.6</td>
<td>1.0</td>
</tr>
<tr>
<td>Chickasawhay River</td>
<td>1.0</td>
<td>0.6</td>
<td>1.0</td>
<td>1.2</td>
</tr>
</tbody>
</table>

**ABSTRACT**

This project examines changes in the Pascagoula River and its tributaries in southeastern Mississippi. Changes are evaluated for a minimum of three periods including historic maps from 1945-51 (partial coverage), aerial photographs from 1955-68, maps from 1985-95, and digital orthophotographs from 1995-2005 using geographic information systems (GIS). Reaches with sand and gravel mining, either in the channel or adjacent floodplain, are designated as mined. Notable reaches include the Bolivar River, altered by direct mining of the channel bed and margins, and Thompson Creek, whose floodplain mining has facilitated channel change by pit diversions. Research on channel and bar morphometry and avulsion patterns indicates that channel instability is a consequence of mining activities and changes to the environment and river dynamics.

**THE MAJOR RIVERS**

- **Chickasawhay River Change Indices 1955-96**
- **Leaf River Change Indices: 1955-96**
- **Bowie River Indices: 1955-96**

**THE MINED TRIBUTARIES: BOUIE RIVER**

- **Bouie River Indices: 1955-96**

**ACKNOWLEDGMENTS**

This project was funded by the U.S. Army Corps of Engineers-Mobile District Planning Division, and the Mississippi Nature Conservancy through the U.S. Geological Survey. Several UF students assisted with digitizing. The findings and opinions expressed here are not necessarily those of the funding agencies. Contact Joann Mossa (mossa@geog.ufl.edu) for additional information.