Goals

▲ To conduct preliminary data, resource, stakeholder and cost benefit analyses to guide the development of a watershed plan scope focused on components providing the greatest return on investment; and

▲ To assess opportunities to connect watershed planning efforts downstream with water management efforts upstream.
Objectives

▲ Conduct background surveys throughout the basin to develop an inventory of governmental agencies and others involved with the numerous planning and restoration efforts.

▲ Conduct a gap analysis to ascertain potential synergies or conflicts with ongoing and planned upstream efforts.

▲ Conduct a Watershed Planning cost analysis to determine levels of investment for each component of a comprehensive watershed plan

▲ Develop a base project scope for the Tensaw Apalache comprehensive watershed plan, including a schedule of scope additions, their approximate costs, potential funding sources, and funding availability

▲ Prepare Final Report and present to SAC and PIC.
Major Stakeholders

- DOI
- COE
- ADCNR
- GSA
- ADEM
- ALSD
- Private
- NGO's

Federal
State
Non-federal
Original Study Area
Extended Basin Map

Source: BASINS DOWNLOAD 2017
Proposed Watershed Groupings

MBNEP Mobile-Tensaw-Apalachee
Bay Minette – Whitehouse Creek (3-Sub-basins)

▲ Stormwater and watershed erosion issues
▲ Development pressures
▲ Downstream Watershed Impacts
Mobile – Tensaw – Apalachee – 10 Sub-basins
State Ownership of M-T-A

STATE OWNERSHIP

- ADCNR
  - Forever Wild 7%
- Other 77%
- MBNEP Mobile-Tensaw-Apalachee
Government Ownership of M-T-A
Wetland Ownership of M-T-A
Issues Identified for T-A Watershed

▲ Habitat Conservation
  • Support Land Acquisition and Public Trust ownership
▲ Habitat Management
▲ Land Use
▲ Hydrology
  • Surface Water Flows
  • Groundwater Flows
▲ Pollutants
▲ Access

▲ Long Term Monitoring
  • Hydrology – expand-extend COE work, GSA work Causeway
  • Water Quality – Continue ADEM work and expand as practical
  • Biology – expand and extend GSA and ADEM efforts
Other Issues/Stakeholders

▲ Legacy Pollutants
  • Mercury
  • DDT

▲ Navigation/Alabama State Port Authority

▲ Other Stakeholders
  • Forestry Landowners
  • Manufacturers /Industry
  • Sportsmen
Other Issues/Stakeholders

▲ Geographic Information System (GIS)
  • Much of the work outlined is a GIS Exercise

▲ Creative Monitoring Programs – Tap into Available Resources
  • Satellite Info- Tap into data syntheses
  • Volunteer Monitoring Programs
## Scope Tasks - MBNEP

<table>
<thead>
<tr>
<th>Sub-task #</th>
<th>Sub-task</th>
<th>Implementation Entity</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SCIENCE</strong></td>
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<tr>
<td>1.1</td>
<td>Synthesize the current science knowledge (typical watershed management planning) and monitoring data</td>
<td>Program manager for the MTA</td>
<td>To be conducted immediately based on documents collected for through this scoping exercise (see references list and Microsoft Access database supplemental info).</td>
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<tr>
<td><strong>MONITORING</strong></td>
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<tr>
<td>1.2</td>
<td>Identify where to install stream gages, groundwater gages (GSA), and flow gages (USACE, GSA) and install for data collection (1 year worth of data)</td>
<td>Implementation for this task is recommended to be performed by those organizations that have been doing these efforts to date in other locations in the Tensaw Apalachee watershed.</td>
<td>12-18 months – Year 1 and 2 of planning exercise</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• GSA – describe their efforts and how to expand…outline important areas that require the above data.</td>
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<tr>
<td></td>
<td></td>
<td>• USACE – describe how their efforts in lower delta can be expanded to upper reaches of watershed. Suggest locations of where…..create map??</td>
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<tr>
<td></td>
<td></td>
<td>• ADEM / GSA – expand biological monitoring as appropriate</td>
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</table>
# Preliminary Task Lists - Assessments

<table>
<thead>
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<tbody>
<tr>
<td><strong>HABITAT CONSERVATION</strong></td>
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<td></td>
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<tr>
<td>2.1</td>
<td>Conduct geospatial exercise to map out priority locations for conservation efforts</td>
<td>Third party land conservation group already active in the area. Requires dedicated staff person(s) (1 FTE) to conduct geospatial analysis and then target key parcels owners to identify willing participants and conduct education/outreach (cross over with outreach Task).</td>
<td>To be conducted immediately – Year 1 of planning</td>
</tr>
<tr>
<td>2.2</td>
<td>Engage prioritized landholders (see outreach task below)</td>
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<td></td>
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<tr>
<td><strong>HABITAT MANAGEMENT</strong></td>
<td></td>
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<tr>
<td>2.3</td>
<td>Conduct invasive species mapping and ground-truthing on MTA State protected lands</td>
<td>Specialized contractor in collaboration with ADCNR staff.</td>
<td>To be conducted immediately – Year 1 of planning</td>
</tr>
<tr>
<td><strong>LAND USE</strong></td>
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<tr>
<td>2.4</td>
<td>Assess current voluntary Best Management Practices for riparian and forestry practices and recommend updates.</td>
<td>Specialized contractor or state/federal appointed representative that can recommend and enact change to current BMPS</td>
<td>To be conducted immediately – Year 1 of planning</td>
</tr>
<tr>
<td><strong>HYDROLOGY</strong></td>
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<tr>
<td>2.5</td>
<td>Conduct geospatial analysis of canals, channels, levees in the watershed area</td>
<td>Specialized geospatial contractor.</td>
<td>To be conducted immediately – Year 1 of planning</td>
</tr>
<tr>
<td>2.6</td>
<td>Expand current modeling efforts to upper MTA areas (e.g. flow, quantity, quality)</td>
<td>Specialized hydrodynamic modeling contractor.</td>
<td>Dependent on other modeling efforts and funding opps to decide what exactly needs to be conducted – delay until further information collected.</td>
</tr>
<tr>
<td><strong>POLLUTANTS</strong></td>
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</tr>
<tr>
<td>2.7</td>
<td>Identify and sample legacy areas of contamination to determine hot spots of continued contamination</td>
<td>Specialized contractor in collaboration with Manufacture-Alabama, ADCNR, responsible federal agencies, and local communities/landholders.</td>
<td>?</td>
</tr>
</tbody>
</table>
## Preliminary Tasks - Outreach

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>HABITAT CONSERVATION EDUCATION</td>
<td>3.1 Conduct education and outreach to key stakeholders on conservation options (MOU, CE, fee simple)</td>
<td>Third party land conservation group already active in the area. Requires dedicated staff person(s) (1 FTE) to target key parcels owners.</td>
<td>To be conducted immediately – Year 1 of planning</td>
</tr>
<tr>
<td>LAND USE EDUCATION AND OUTREACH</td>
<td>3.2 Education of major key private landholders on voluntary Best Management Practices for riparian and forestry practices and recommend BMPs.</td>
<td>Third party land conservation group in conjunction with NRCS, ADCNR. Overlap with Task 3.1</td>
<td>To be conducted immediately – Year 1 of planning</td>
</tr>
<tr>
<td></td>
<td>3.3 Outreach and education to public on current access opportunities and project ideas that would affect their navigation and use of MTA.</td>
<td>Specialized outreach specialist</td>
<td>Last quarter of project</td>
</tr>
<tr>
<td>POLLUTANT OUTREACH</td>
<td>3.4 Outreach to major Industrial/manufacturing stakeholders</td>
<td>Specialized contractor in collaboration with Manufacture-Alabama.</td>
<td>?</td>
</tr>
</tbody>
</table>
## Decision Making

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Create decision-making matrix through establishment of issue specific criteria (developed through SAC)</td>
<td>Program Manager for MTA watershed plan.</td>
<td>Last quarter of planning process</td>
</tr>
</tbody>
</table>
Thank you for your Attention
Net Primary Production
Contaminants from Causeway Study
Figure 1. Location map of the Mobile-Tensaw River Delta, Alabama.

Source: O’Neill, 2007
Upstream Basin BMP Reports

Source: Kleinschmidt, 2005
### Upper Tombigbee Watershed, Tuesday, March 16, 2004 at 6:00 p.m. at the Cooperative Extension Building, Carrollton, Alabama

**Concerns and Issues:**

- Need for planning efforts to generate projects utilizing NRCS cost-share programs, such as EQIP (environmental quality improvement program), WHIP (wildlife habitat improvement program), and WRP (wetland reserve program).
- Need BMP demonstration projects in the watershed.
- Coordination with Mississippi an issue for water quality management and for habitat protection and management, such as the establishment of critical habitat by the USFWS. The approaches used by the two states need to be coordinated.
- Need updates on the status of river basin and watershed management plans from the Mississippi part of the basin, as well as 305(b) and 303(d) programs for the basin in Mississippi.
- Night watershed meetings are a challenge for farmers and landowners, particularly during planting season.
- Need continued coordination on the watershed efforts between Alabama and Mississippi.
Middle Tombigbee Watershed, Thursday, March 18, 2004 at 12:00 p.m. at the University of West Alabama On-Site Wastewater Demonstration Training Center, Livingston, Alabama

Concerns and Issues

- Need septic system data to assess the failure of septic systems in the watershed, incidence of failures, poor septic system siting and installation, need for enhanced public health enforcement, and degree of pathogenic bacteria pollution from failing septic systems.

- Septic data and failure assessments can be analyzed using data from the Alabama Department of Public Health, County Health Departments, and using the SWCC watershed data.

- Need BMP demonstration projects in the watershed, targeting landowner coordination of projects.
Tombigbee

Lower Alabama/Lower Tombigbee Meeting, Thursday, March 18, 2004 at 6:00 p.m., ALFA Building, Grove Hill, AL

**Concerns and Issues**

- Forestry and Nonpoint Source Pollution
  - Explore ways to enhance outreach efforts to non-company "mom and pop" logging operations to increase knowledge and understanding of sustainable forestry practices.
  - For example, a stakeholder pointed out that Alabama River Woodland does not own woodlands; they pay logging companies and forest land owners for timber. They follow the SFI management principles and practices. They also follow a "3-strikes-and-you-are-out" Policy for timber harvesters whose practices are not consistent with SFI.

- Road construction and maintenance in the watershed is an issue. Specific items or areas of concern were mentioned and are listed below:
  - County and State Road Crews should be trained and supervised. Perhaps County Engineers could be trained in modern water quality BMPs for road work. As an incentive they may receive continuing education credits (CEUs).
  - Currently, it appears that the road crews do not adhere to BMPs for road work.
  - There is a need for BMP enforcement – is there a mechanism that could be used and improved?
  - Any system needs incentives for compliance.

- Mining and excavation operations impact water bodies.
  - It is perceived that the contractors (the people that dig) are the source of the problem.
  - Need for BMP training, implementation and monitoring/enforcement for this industry.

- Water Festivals have been and are a great educational outlet and activity for local students and teachers.

- Illegal dumping of solid waste from watercraft on the Alabama and Tombigbee Rivers is a widespread problem.

- Road crossings and boat ramps lead to stream and river bank erosion and they also tend to be areas where litter is dumped or left. Improper disposal of deer and game carcasses is considered a problem in the basin and could be addressed through hunter education.

- Investigate technology transfer of BMP technology from one industry (forestry) to another (transportation).

- Road construction BMPs are needed – What program can be implemented?

- Who has jurisdiction over dumping of trash and waste from watercraft? Answer: U.S. Coast Guard, ADDEM, state and municipal law enforcement authorities.

- Who has jurisdiction over river traffic? Answer: U.S. Coast Guard, ACE, ADDEM, state and municipal law enforcement authorities.
Alabama Basin Map

Source: Kleinschmidt, 2005
## Upper Alabama – Catoma Creek Watershed, Wednesday, March 17, 2004 at 12:00 p.m. at the Montgomery County, Department of Health Auditorium, Montgomery, Alabama

### Concerns and Issues:

- There are two creeks that are called, “Cypress Creek” – one flowing through Downtown Montgomery and one flowing through Lowndes County. Information regarding Brownfield and groundwater issues of this downtown creek can be discovered at ADEM.
- Wetlands banking is an increasingly popular management strategy to protect water resources in Alabama. For more information about the Alabama Wetlands Mitigation Bank at the McLemore Family property see [www.gmcnetwork.com](http://www.gmcnetwork.com).
- Catoma Creek information and its *Lessons Learned* will be mentioned in the Alabama River Basin Management Plan and joint Upper Alabama Sub-basin and Catoma Watershed stakeholder meetings will be held.
- ACOE water quality data is available and should be included in the Plan.
- Soil erosion and runoff from municipal roads and new road construction
- Severe soil erosion and sedimentation
- Water pollution by pathogenic bacteria
- Wetland and aquatic habitat destruction
- Polluted stormwater runoff with toxics, pathogenic bacteria
- Rapid urban development, increased impervious surfaces, and polluted runoff
- Lack of understanding and awareness of nonpoint source pollution issues
- Difficult access to builders, contractors, developers, and municipal officials to discuss nonpoint source pollution issues.

Source: Kleinschmidt, 2005
### Lower Alabama/Lower Tombigbee Meeting, Thursday, March 18, 2004 at 6:00 p.m., ALFA Building, Grove Hill, AL

**Concerns and Issues:**

- **Forestry and Nonpoint Source Pollution**
  - Explore ways to enhance outreach efforts to non-company “mom and pop” logging operations to increase knowledge and understanding of sustainable forestry practices.
  - For example, a stakeholder pointed out that Alabama River Woodland does not own woodlands; they pay logging companies and forest land owners for timber. They follow the SFI management principles and practices. They also follow a “3 strikes and you are out” Policy for timber harvesters whose practices are not consistent with SFI.

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- **Mining and excavation operations impact water bodies.**
  - It is perceived that the contractors (the people that dig) are the source of the problem.
  - Need for BMP training, implementation and monitoring/enforcement for this industry.

- **Water Facts** have been and are a great educational outlet and activity for local students and teachers.

- **Illegal dumping of solid waste from watercraft on the Alabama and Tombigbee Rivers is a huge problem.**

- **Road crossings and boat ramps lead to stream and river bank erosion and they also tend to be areas where litter is dumped or left.**

- **Investigate technology transfer of BMP technology from one industry (forestry) to another (transportation).**

- **Road construction BMPs are needed – What program can be implemented?**

- **Who has jurisdiction over dumping of trash and waste from watercraft?** Answer: U.S. Coast Guard, ADEM, state and municipal law enforcement authorities.

- **Who has jurisdiction over river traffic?** Answer: U.S. Coast Guard, ACOE, ADEM, state and municipal law enforcement authorities.

Source: Kleinschmidt, 2005
Primary Production

- Fundamental Ecosystem Service
- Management implications
- Existing spatially explicit models
  - MOD17
  - CASA
- Original logic proposed by Monteith (1972)

Source: BASINS DOW