EEP River Basin Restoration Priority Methodology

1) Desktop GIS screening of data
   - Consistent datasets are utilized for all LWPs across the state (as reasonable taking into consideration relevant and non-relevant data between statewide regions). See Attachment A.
   - Hydrologic Units (HUs) are compared within each catalog unit (CU) of a river basin. Each CU must have at least one Targeted Local Watershed (TLW) identified.
   - Problem and Asset dataset are weighted based upon the contribution of data to the Watershed Needs Assessment Team goals (WNAT, 2003)\(^1\). This maintains a consistent and justifiable tie to EEP program goals. See Attachment B.
   - Data evaluated in the Opportunities category is not weighted. Opportunities should represent data on potential partnerships, the presence of existing projects (both EEP and non-EEP projects), as well as watersheds with a high feasibility for mitigation.
   - Quartiles will be utilized to identify the top quarter of HUs that score highly when considering Problems, Assets and Opportunities. These HUs will serve as the draft priority list for TLWs.
   - Weights are applied to Problem and Asset attributes, per the approach discussed above, and each HU receives an overall score for all three categories (simply by adding all attributes).
   - Maps for all three categories in each CU will be produced, as well as a map combining all three total scores for each CU. The combined total score will also reflect weights assigned to the categories: Problems (weight of 2), Assets (weight of 2) and Opportunities (weight of 1) which are applied after attributes of each category are evaluated. HUs that score highly in the combined map should be double-checked against the three individual maps to verify they are not high ranking in only one category and ensure EEP is targeting “well rounded” HUs. See Attachment B.
   - Planners can present a method utilizing Natural Breaks rather than Quartiles to the Watershed Planning Oversight Committee (WPOC) for certain datasets, such as those that have highly uneven distributions. If approved by the WPOC, the above method would still need to be followed with the exception of identifying TLWs by using natural breaks rather than the quartile method.

2) Inclusion of non-GIS information
   - The non-GIS information is utilized as a tool to “tip the scales” if necessary for borderline HUs or for confirmation that other agencies have prioritized these watersheds as well. Resources considered for this evaluation include: NC Division of Water Quality (DWQ) Basinwide Plans & Assessment Reports, NC Natural Heritage Program county inventories, NC Clean Water Management Trust Fund (CWMTF)corridor studies, Soil and Water Conservation District (SWCD) reports, DWQ Total Maximum Daily Load (TMDL) modeling reports, County Land Use Plans, NC Wildlife Resource Commission (WRC) Wildlife Action Plans, NC Center for Geographic Information and Analysis (CGIA) reports, US Fish and Wildlife Service (USFWS) reports, WNAT reports, zoning maps, local watershed plan (LWP) documents, local land trust conservation plans and other local organizations or agency publications.

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\(^1\) WNAT 2003. Report from the Watershed Needs Assessment Team to the Mitigation Coordination Group.
3) Field verification
   - Planners and project managers field verify as much of a watershed as possible and may contact local resource professionals for additional information and/or to participate in field review.

4) Stakeholder input
   - At a minimum, planners contact all stakeholders identified in the [EEP Compensatory Planning Framework](#) (assuming all positions exist within the watershed) and offer at least one workshop during each RBRP update. A letter is submitted via email or hard copy to all stakeholders to inform interested parties of the RBRP update, and serves as notification of the upcoming workshop.
   - EEP posts “public review” notifications on its website home page as a way to notify the public of the opportunity to provide input on RBRPs (this notification provides the contact information for the appropriate planner and a copy of the letter sent to resource professionals, identifying the CUs being updated and the timeframe for comment.) Notification is also sent via the EEP e-mail distribution list and to the chair of the Interagency Review Team.

5) RBRP Review Process

   The following steps are taken when developing draft RBRPs for review:
   - If, after evaluating GIS and non-GIS data, completing field verification and compiling stakeholder input, planners determine it is appropriate to add or remove a HU from the draft TLW list (Step 1), planners prepare a justification and present information to resource professionals at a public workshop.
   - After receiving resource professional input, the planner presents justification for addition or removal of TLW from draft priority list to the Watershed Planning Oversight Committee. If TLWs are approved for delisting, the planner includes a section in the RBRP update identifying delisted TLWs and reasons for delisting.
   - Planner submits Draft RBRP to the designated EEP Review Team. There is a 30-day period for review and comments. Document will conform to the most current RBRP template.
   - Following internal EEP approval, the Draft RBRP is: 1) posted on EEP’s website, 2) transmitted via the e-mail distribution list and 3) submitted to the chair of the IRT for review. There will be a 30-day period for review and comments.
   - Once finalized, the updated document is posted on EEP’s website and the GIS database and IMS are updated.
     - DO NOT MAKE CHANGES TO GIS FILES OR IMS UNTIL FINAL DOCUMENT HAS BEEN APPROVED.

Other

6) Thresholds for percent of area targeted per CU
   - Percent of area per CU is the threshold measured and EEP aims for targeting 25 to 40 percent of a CU, with a maximum of 50 percent of a CU being targeted.

7) RBRPs split between EEP regions
   - RBRPs that span two EEP regions are coordinated and presented as one document.

8) Update frequency
RBRPs are updated on an as-needed basis, based on the level of activity and frequency of data updates within a CU and/or service area, but at a minimum, are updated every five years. The date of CU update will be clearly identified in the RBRP.
Attachment A

RBRP Required Datasets

Problems (*weight= x2)*
- % Impervious/% Developed
- % Agriculture
- % Non-Forested/Disturbed Buffer
- % Impaired
- # Animal Operations
- Projected Pop Change
- Shellfish Closures (East)

Asset (*weight= x2)*
- % Forest & Wetland
- % Conserved
- % SNHA
- WSW
- HQW
- ORW
- Trout (West & some Piedmont)
- # NHEO

Opportunities (*weight= x1)*
- TIP
- % Hydric A
- # EEP Projects
- # CWMTF
- # 319
- % WRC Priority Area
- % Phase II Stormwater Area
- # Ag BMPs
- # Mitigation Banks
- # Land Trust Conservation Properties
- # Dams
- Surface Water Intake

- Data will be reviewed on an annual basis. Designated planning representative will coordinate with EEP GIS Specialist to contact data providers and determine if data updates are available.
- Before any LWP gets approved part of the justification presented will be whether the RBRP needs to be updated based on availability of new data, mitigation needs, activities within the watershed, etc.

*When developing the combined spreadsheet and combined scores these are the weights to be applied to the final scores from each of these categories.
Attachment B
RBRP Weighting Methodology

This approach to Catalogue Unit (CU) Screening advocates taking a programmatic approach to prioritizing hydrologic units (HUs) for TLWs. The functional goals that EEP strives to achieve in its work could be condensed into the following:

Goal #1: Protection and improvement of water quality.
Goal #2: Increase floodwater retention capabilities.
Goal #3: Protection and improvement of aquatic and riparian habitat.

The Watershed Needs Assessment Team (WNAT) has proposed a number of measures that relate to each goal (WNAT 2003). For this exercise, each measure is classified by its ability to directly relate to the goal. In some cases, an argument can be made whether the measure has direct, indirect or virtually no influence on the goal. Using research and experience, a determination has been made to capture the relevance of each measure.

The importance of each measure can then be gauged by assigning values to quantify their influence. Table 1 lists the proposed values to gauge influence.

Table 1. Proposed weights for the importance of each measure.

<table>
<thead>
<tr>
<th>Importance</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Influence</td>
<td>2</td>
</tr>
<tr>
<td>Indirect Influence</td>
<td>1</td>
</tr>
<tr>
<td>No Influence</td>
<td>0</td>
</tr>
</tbody>
</table>

Tables 2 and 3 contain a list of the measures identified to detail watershed problems and assets and the calculated weight for each metric. The weight is determined by adding up the weight for each goal across the row. For example, much research supports that Forest Riparian Cover in Table 2 has direct influence on each listed goal. As a result, the composite weight for that measure is 2 + 2 + 2, or a total of 6. Composite weights represent the standard weights that will be applied to metrics across all EEP regions of the state. Table 4 contains a list of measures utilized to assess opportunities within a watershed; these parameters are not weighted as problems and assets.

Table 2. Calculated weights for watershed metrics linked to restoration objectives (i.e., Watershed Problems).

<table>
<thead>
<tr>
<th>Watershed Measure</th>
<th>WQ Improvement Potential</th>
<th>Flood Retention Improvement Potential</th>
<th>Riparian and Aquatic Habitat Improvement Potential</th>
<th>Composite Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Impervious/ % Developed</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>% Agriculture</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>% Non-Forested/Disturbed Buffer</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>% Impaired</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td># Animal Operations</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Projected Population Change</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Shellfish Closures</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 3. Calculated weights for watershed metrics linked to preservation objectives (i.e., Watershed Assets).

<table>
<thead>
<tr>
<th>Watershed Measure</th>
<th>WQ Protection Potential</th>
<th>Flood Retention Protection Potential</th>
<th>Riparian and Aquatic Habitat Protection Potential</th>
<th>Composite Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Forest and Wetland</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>% Conserved</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>% Significant Natural Heritage Area</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Water Supply Waters (mi)</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>High Quality Waters (mi)</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Outstanding Resource Waters (mi)</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Trout (mi)</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td># Natural Heritage Element Occurrences</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 4. Watershed Opportunities

| % Hydric A Soils                      |                        |                                      |                                                  |                  |
| TIP (mi)                              |                        |                                      |                                                  |                  |
| # EEP Projects                        |                        |                                      |                                                  |                  |
| # CWMTF Projects                      |                        |                                      |                                                  |                  |
| # 319 Projects                        |                        |                                      |                                                  |                  |
| % WRC Priority Area                   |                        |                                      |                                                  |                  |
| % Phase II Stormwater Area            |                        |                                      |                                                  |                  |
| # Ag BMPs                             |                        |                                      |                                                  |                  |
| # Mitigation Banks                    |                        |                                      |                                                  |                  |
| # Land Trust Conservation Properties  |                        |                                      |                                                  |                  |
| # Dams                                |                        |                                      |                                                  |                  |

Listing the goals and the relationship of each parameter utilizes a more functional approach to assessing watersheds, as opposed to simply listing a watersheds problems and assets.

Spreadsheets are developed for problems, assets and opportunities with data for all parameters identified above for each HU within the relevant Catalog Unit (CU). It should be noted that the HUs are to be compared to all HUs within the same CU. Spreadsheets are utilized to identify quartile thresholds for each parameter (labeled 0 to 3). Once all the HUs are sorted into the appropriate quartile, the weights identified in the tables above are applied to each. For example: an HU that fell into the highest quartile (labeled 3) for Conserved Area would receive a score of 12 (weight of 4 x quartile 3). This is done for each parameter for problems and assets only. Opportunity scores would include quartile values only. Each HU receives a final “score” adding up all parameters for each individual category of problems, assets and opportunities. The final scores for each category are normalized so that the highest score equals 100, to simplify the comparison. The normalized final scores are then sorted into quartiles. After a score has been
determined for every HU in all three categories, a combined spreadsheet is then developed by adding the final scores for problems, assets and opportunities together for each HU. During this step, an additional weight is applied to each final score for all three categories: Final scores for problems have a weight of 2, final scores for assets have a weight of 2 and final scores for opportunities have a weight of 1. This combined score is again normalized and sorted into quartiles. The quartiles for problems, assets, opportunities and combined are translated thru Access into GIS for mapping purposes. As a result of this process, the HUs which represent the top quarter according to final scores will become the set of Draft TLWs.

Reference: