Recovery Potential Screening Tool

Final Results and Recommendations

RPS Project Goals

- Tasked with evaluating the effectiveness of the EPA's Recovery Potential Screening Tool in the UTRB in regards to bacteria

- Findings and Conclusions:
  - The process was helpful for:
    - Stimulating discussion and determining most useful indicators for assessing bacterial recoverability with group of knowledgeable stakeholders
    - Searching for available data for these indicators and identifying data gaps for future efforts
    - Assessing limitations of EPA's tool, especially in regards to newly developed state-wide spreadsheet for Texas

- **Final results not as useful as the process itself, but provides a starting point to add data in future**

Indicator Selection

- Unlike most cases in which this EPA tool has been used, our indicators were chosen through interactive process with large group of involved stakeholders
  - Survey, Committee meeting discussions, data source input
- More accurate reflection of local situation, but limited usefulness of EPA tool
  - Example: Texas spreadsheet

- All indicators chosen were defined, sourced and calculated specifically for this project
  - Localized datasets used where possible
  - All but 2 indicators were included in final screening

Indicators Not Included: Data Gaps

- **Sanitary Sewer Overflows (SSO's)**

  - Currently no readily available, uniform dataset that is complete, reflects magnitude and duration, and is also georeferenced on a scale that is useful for our watershed size

  - The NCTCOG has a historical map for the Implementation-Plan for the Greater Trinity River Region. This map (handout at several of our committee meetings) is helpful but fails to have data for the entire study region

    - Follow up with discussion with TCEQ has suggested they are working to house SSO data in a central database which would eventually be accessible on the EPA's ECHO website

    - For records request, online form needs to be updated to be more inclusive of the variety of data requested by stakeholders

Indicators Not Included: Data Gaps

▶ **Soils and Bank Stability**

Mainly an issue of scale, again reflects why the RPS tool is often more useful at a state level.

▶ Large Scale: Multiple datasets display dominant soil types by geographic area, but too large a scale for our project (state or national)

▶ Small Scale: National Resources Conservation Service maintains a soil database called SSURGO

▶ Intended for natural resource planning and management by landowners, townships, and counties, and as such it is displayed at a smaller scale than the watershed level we were examining

▶ Missing data: GIS dataset maintained by the NCTCOG that displayed soil types as a continuous layer

▶ Key did not contain the reference information necessary to compare the different soil types in the study area

▶ By drawing attention to this data gap, the NCTCOG has since added completion of this key as a goal for the upcoming year and plans to make this dataset readily available in future

Final Ecological Indicators

Corridor % Natural Cover	The total percentage of the segment corridor (defined by committee as 250 m on either side) that is currently designated as "natural cover". Natural cover is considered beneficial for recovery as relates to bacterial impairment.	National Land Cover Dataset (www.nlcd.org); 2011 (most recent version published)
% Preservation of Natural Cover	Compare land cover data from 2001 and 2011 to determine percent of natural cover retained over that time period for that watershed. The higher percentage of natural cover retained is likely a higher recoverability for the watershed as relates to bacterial impairment.	National Land Cover Dataset (www.nlcd.org); 2001 and 2011 versions
Corridor % Wetland	Total percentage of the segment corridor that is currently designated as "wetland". Wetlands are considered beneficial for recovery as relates to bacterial impairment.	National Land Cover Dataset (www.nlcd.org); 2011 version
Watershed % Stream Length Unimpaired	Percentage of the total stream length of the segment that is not listed as impaired. A segment with a higher percentage of unimpaired stream length is considered more recoverable.	TCEQ's 2014 Surface Water Quality Monitoring (SWQM) dataset

Final Stressor Indicators

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Severity of Loading	The actual bacterial load (*E. coli* geomean) found in the segment. A higher bacterial content is less favorable for recoverability.	TCEQ's 2014 Surface Water Quality Monitoring (SWQM) dataset
Watershed % Urban	Percentage of the total watershed that is currently designated as "urban". Urban land cover is considered less favorable for recoverability as relates to bacteria.	National Land Cover Dataset (www.nlcd.org); 2011 version
Corridor % Agriculture	Percentage of the total watershed that is currently designated as "agriculture". Agricultural land cover is considered less favorable for recoverability as relates to bacteria.	National Land Cover Dataset (www.nlcd.org); 2011 version
% Change in Population	Total number of people the watershed was expected to grow by, as calculated by comparing current and projected populations for the surrounding HUCs and estimating for area covered by target subwatershed.	For HUC12s: 2015 Population Data compared to 2040 Population Projections developed by the NCTCOG; 2015 Population Data compared to 2040 Population Projections developed by TRWD

Final Social Indicators

Recreational Resource	Count of the recreational areas on or adjacent to the segment.	National Land Cover Dataset (www.nlcd.org); 2011 version
Government Agency Involvement	Count of involvement in known governmental programs (iSWIM, WPP or other).	NCTCOG data and personal communication with stakeholders

Indicator Weighting

| Indicator	Weight	Notes
Corridor % Natural Cover	3	Only one dataset used (NLCD 2011), most accurate dataset possible for this metric
% Preservation of Natural Cover	1	Two datasets used (NLCD 2001, 2011) with some conflicts between classification categories (e.i. shrub/scrub not present in 2001)
Corridor % Wetland	2	Only one dataset, but in some conflict when cross-referenced with National Wetland Inventory (NWI) dataset
Watershed % Stream Length Unimpaired	3	Only one dataset used (TCEQ SWQM Integrated Report), most accurate dataset possible for this metric
Severity of Loading	3	Only one dataset used (TCEQ SWQM Integrated Report bacterial geomean), most accurate dataset possible for this metric
Watershed % Urban	3	Only one dataset used (NLCD 2011), most accurate dataset possible for this metric
Corridor % Agriculture	3	Only one dataset used (NLCD 2011), most accurate dataset possible for this metric
% Change in Population	2	Two differing datasets used with (NCTCOG where available, and TRWD for watersheds outside of NCTCOG boundaries). All values were for surrounding HUC12s and had to be estimated for area covered in target subwatersheds.
Recreational Resource	1	Simple count of the recreational areas on or adjacent to the segment. Doesn't account for negative influence of recreation, or purpose of area itself.
Government Agency Involvement	1	Simple count of involvement in three known governmental programs. Doesn't account for other unknown involvement, area covered, or other aspects of this metric that are more difficult to measure.

Watershed ID	Watershed Name	Ecological Index	Ecological Rank	Stressor Index	Stressor Rank	Social Index	Social Rank	RPI Score	RP Index
806E	Sycamore Creek	62.96	1	55.70	13	100.00	1	69.09	1
0809B	Ash Creek	33.71	12	30.69	6	70.85	2	57.96	5
810	West Fork Trinity River Below Bridgeport Reservoir	44.53	5	26.30	3	62.50	3	60.24	4
810A	Big Sandy Creek	35.53	10	30.26	5	33.35	8	46.21	7
0810C	Martin Branch	34.07	11	50.06	11	45.85	5	43.28	10
0820B	Rowlett Creek	46.59	4	50.47	12	41.65	7	45.92	8
0821C	Wilson Creek	42.30	6	36.96	10	25.00	11	43.45	9
0821D	East Fork Trinity River above Lake Lavon	56.17	2	14.11	1	45.85	5	62.64	2
0828A	Village Creek	40.78	8	34.45	8	12.50	13	39.61	11
0838C	Walnut Creek	41.02	7	21.24	2	62.50	3	60.76	3
0841F	Cottonwood Creek	4.99	14	36.49	9	20.85	12	29.78	13
0841K	Fish Creek	51.79	3	31.85	7	29.15	9	49.70	6
0841N	Kirby Creek	9.91	13	28.84	4	29.15	9	36.74	12
0841V	Crockett Branch	35.77	9	58.15	14	0.00	14	25.87	14

Bubble Plot
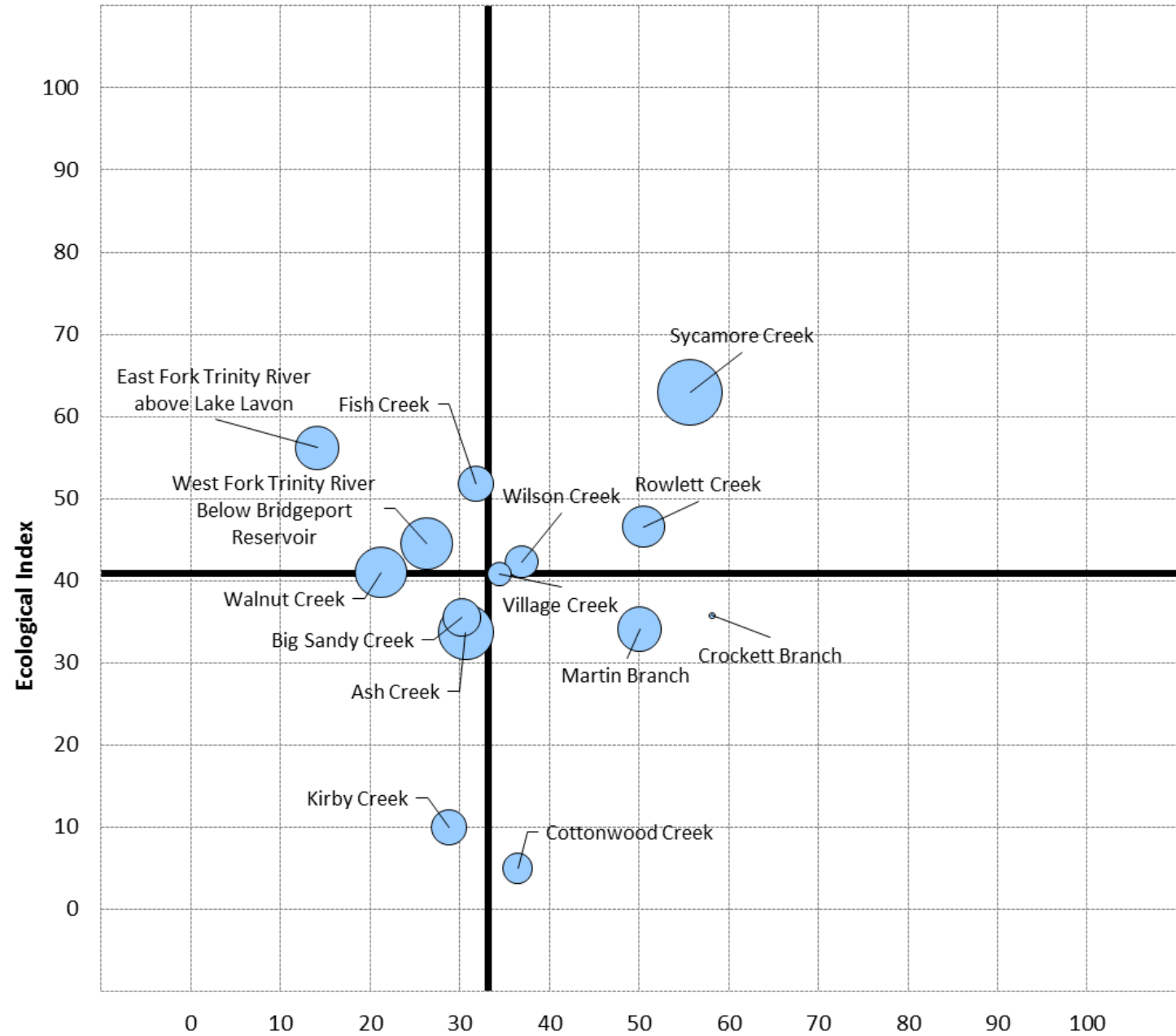
Note: Circle size increases with Social Index score

Impaired Subbasin's Recovery Potential Indexing in the Upper Trinity River Basin
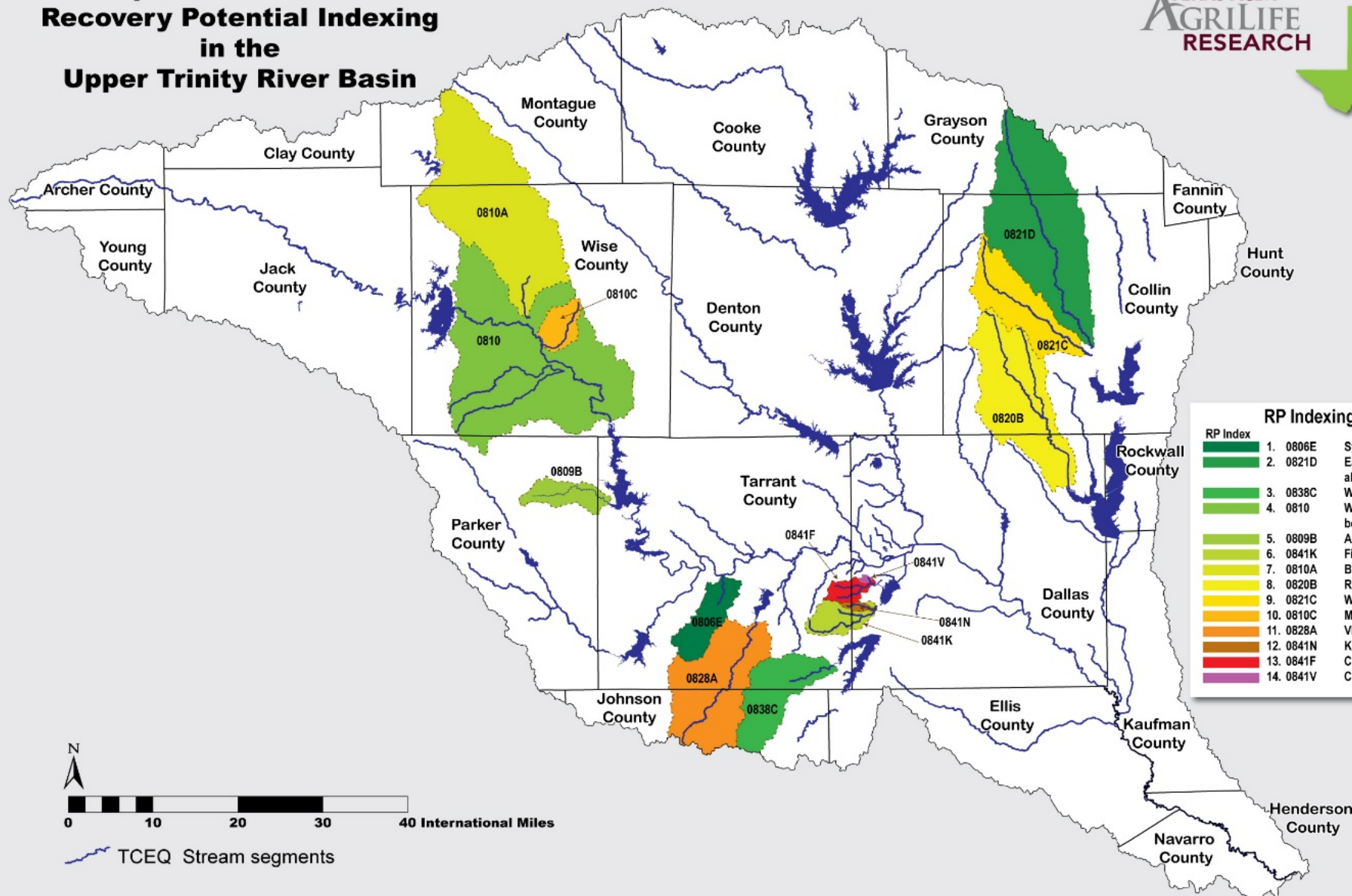
Conclusions

- Tasked with evaluating effectiveness

- Due to the limited nature of the tool for this area, the final indexed results of watersheds not as useful at this stage
  - Scale
  - Bacteria focus
  - Localized data sets for selected indicators

- The process itself was helpful in determining the types of indicators that need to be included in future

- Data gaps identified, with plans in place to fill them

- Can make specific recommendations to EPA about use of their tool in Texas, and for the UTRB and Bacteria in particular