DOUBLE BAYOU WATERSHED PARTNERSHIP

Double Bayou Workgroup Meetings

November 12, 18, 19, 2013

USGS science for a changing world

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Review: Water Quality & Sources

- **Water in a stream is the sum of:**
  - **Water running off the land;**
  - **Water discharged into the stream;**
  - **Rainwater falling on the stream;**
  - **Water seeping from the ground; and,**
  - **In some cases, water coming in from the tides.**
- **In our area, runoff and discharges are generally the biggest sources of water in a stream.**
- **Thus, determining <u>what's happening on the land and coming out of pipes</u> is important for identifying ways to protect the water.**

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Review: Point Source Pollution

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Review: Nonpoint Source Pollution

Double Bayou Workgroups

- **Purposes of the Workgroups:**
  - **Discuss the specific causes and sources of pollution.**
  - **Recommend strategies to reduce pollution from these sources.**
- **Double Bayou Workgroups:**
  - **Ag/ Wildlife/ Feral Hogs**
  - **Septic Systems/ Wastewater Plants**
  - **Recreation/ Hunting**
  - **Residential/ Urban/ Rural Dumping***
  - **Industry/Oil & Gas***

***not filled at this time**

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What are Models?

- **Models are an analytical approximation of a real system.**
- **All models are only as good as their input data.**

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Uses of Watershed Models

- **Estimate quantities of pollutants – the pollutant load.**
- **Estimate load reductions needed.**
- **Evaluate Best Management Practices (BMPs) to reduce the load.**
- **Target critical areas for implementation.**

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SELECT – Spatially Explicit Load Enrichment Calculation Tool

- **Developed at A&M, for Texas rural watersheds.**
- **Identifies potential sources of fecal contamination based on geographic data, using GIS layers such as:**
  - **Land use**
  - **Delineated watersheds**
  - **Soils**
  - **Population density estimates**
  - **Hydrography** (mapping/measuring bodies of water)
- **Calculates loads for locations.**
- **Ranks the contributing sources for the entire watershed.**

Example: Dogs in Anywhere Watershed

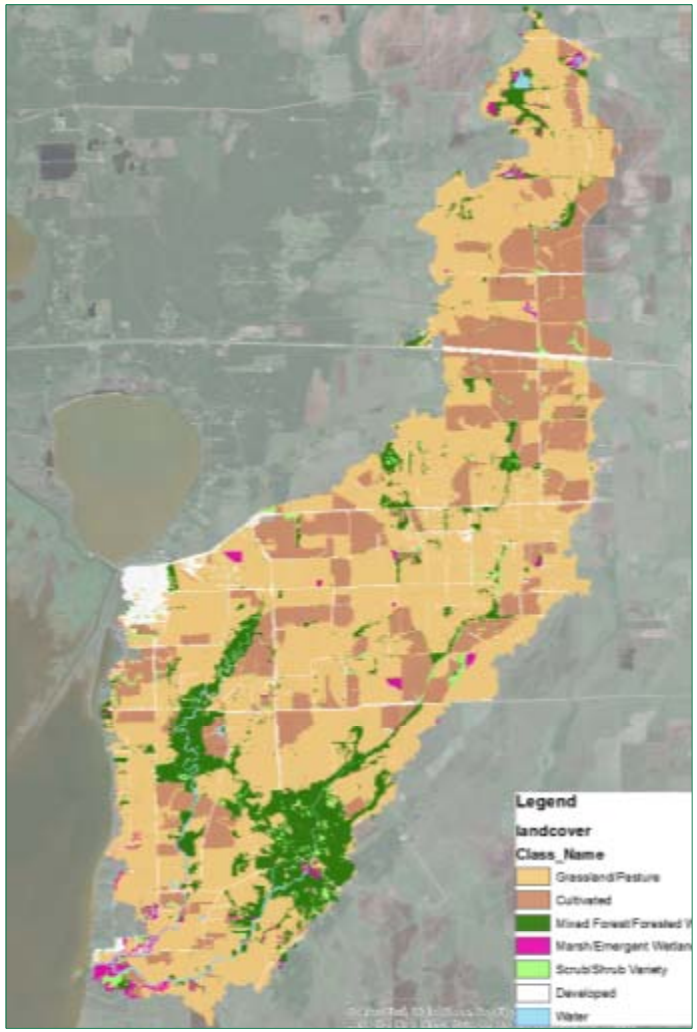
- **WHERE: Estimated Anywhere population: 10,775 (from Census Block data layer)**
- **HOW MANY: 1 dog per household in Anywhere**
- ***HOW MUCH: E. coli* load per dog**
  - **Fecal excretion rates for animals/humans are calculated and published by the EPA.**
  - **Dogs: 5.0×10^9 Fecal Coliform = 2.5×10^9 *E. coli*/day**

SELECT calculates different potential loads from these inputs for Anywhere.

Applying Populations Estimates

- **Each workgroup reviews the numbers:**
  - **Do the sources and published numbers fit this watershed, or how should they be modified?**
- **Each workgroup considers the data layer source inputs:**
  - **Do the data match where in the watershed the population numbers should be applied?**

DB Watershed Land Use/Land Cover



- **Grassland/Pasture – mix of areas dominated by herbaceous vegetation, grasses, legumes; may be used for livestock grazing.**
- **Cultivated – intensely managed for the production of annual crops (>20% of all vegetation); includes all land being actively tilled.**
- **Mixed Forest/Forested Wetland – dominated by trees greater than 5 m tall; includes evergreen or deciduous species; trees represent >20% of the vegetation cover.**
- **Marsh/Emergent Wetland – dominated by emergent vascular plants; vegetation cover >80%; typically perennial or remain standing until next growing season; fresh or estuarine.**
- **Scrub/Shrub Variety – dominated by woody vegetation less than 5 meters high; typically greater than 20% of vegetation cover; fresh, estuarine, or upland.**
- **Developed – mixture of constructed materials and vegetation or other cover, with all types of land use.**
- **Water – open water/submerged land; fresh or estuarine.**

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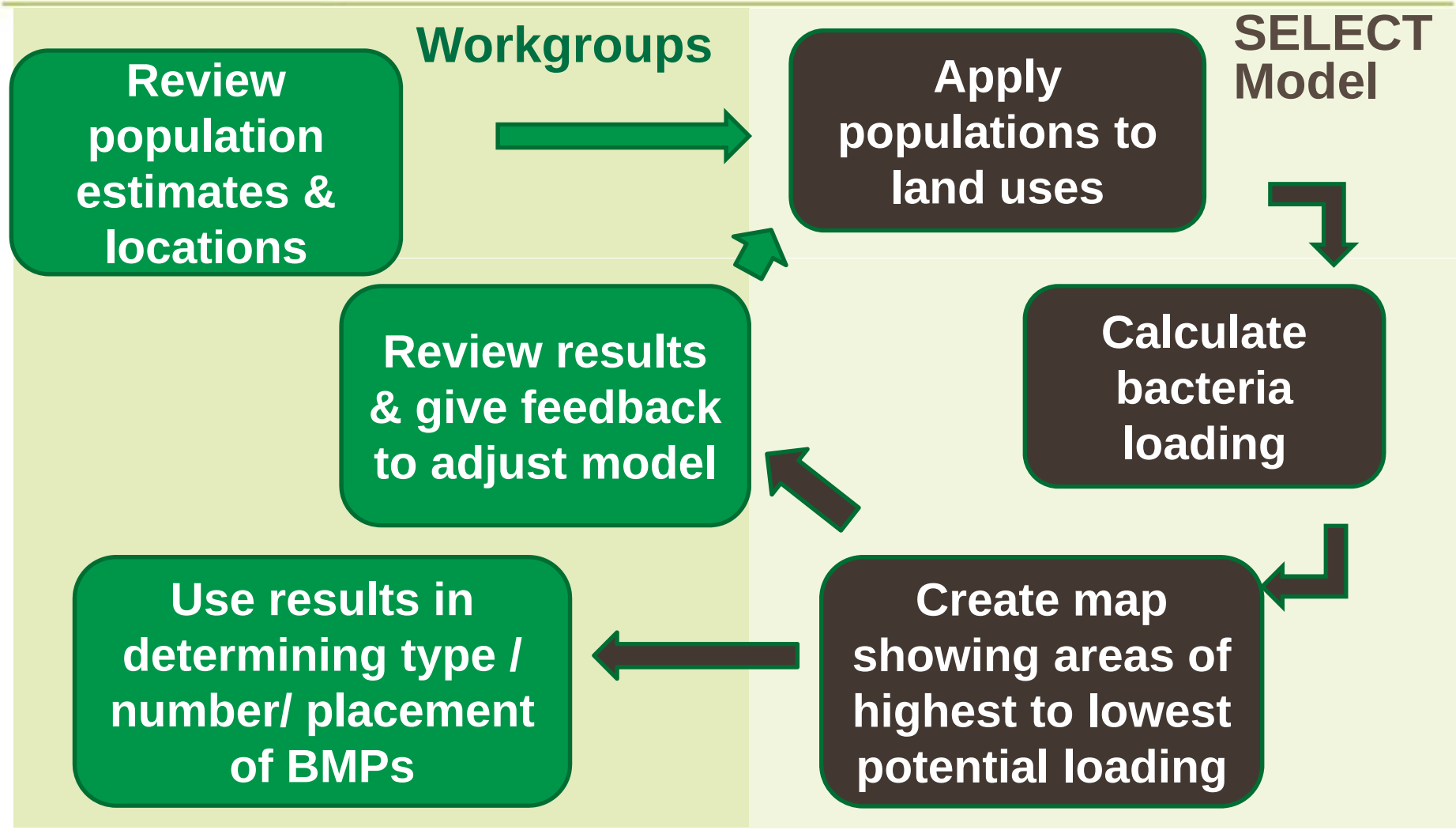
Functions of Workgroups w/ Select



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Nine Elements of a WPP

A. **Identification of causes & sources**
B. Estimate of needed load reductions
C. **Description of management measures**
D. Estimate of technical & financial assistance
E. **Plan for information /education**
F. Schedule for implementation
G. **Description of measurable milestones**
H. Criteria for determining if reductions are achieved
I. **Monitoring plan to evaluate effectiveness**

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HARC
An independent research hub helping people thrive and nature flourish.

Stephanie Glenn, Ph.D.
Houston Advanced Research Center
4800 Research Blvd., The Woodlands, TX 77381
T: 281-386-6042 sglenn@harc.edu

Shead Conservation Solutions

Linda R. Shead, P.E.
Shead Conservation Solutions
P.O. Box 70181, Houston, TX 77270-0181
C: 713-703-1123 linda.shead@sheadconservation.com

Soil Water TSSWCB
Texas State Soil and Water Conservation Board

Brian Koch
Regional Watershed Coordinator
Texas State Soil and Water Conservation Board
1120 Hodges Lane Wharton, Tx 77488
O: 979-532-9496 C: 979-533-8836

www.doublebayou.org

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