ARENOSA AND GARCITAS CREEK WATERSHED PLANNING

Allen Berthold, Michael Schramm – Texas Water Resources Institute
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Texas Water Resources Institute
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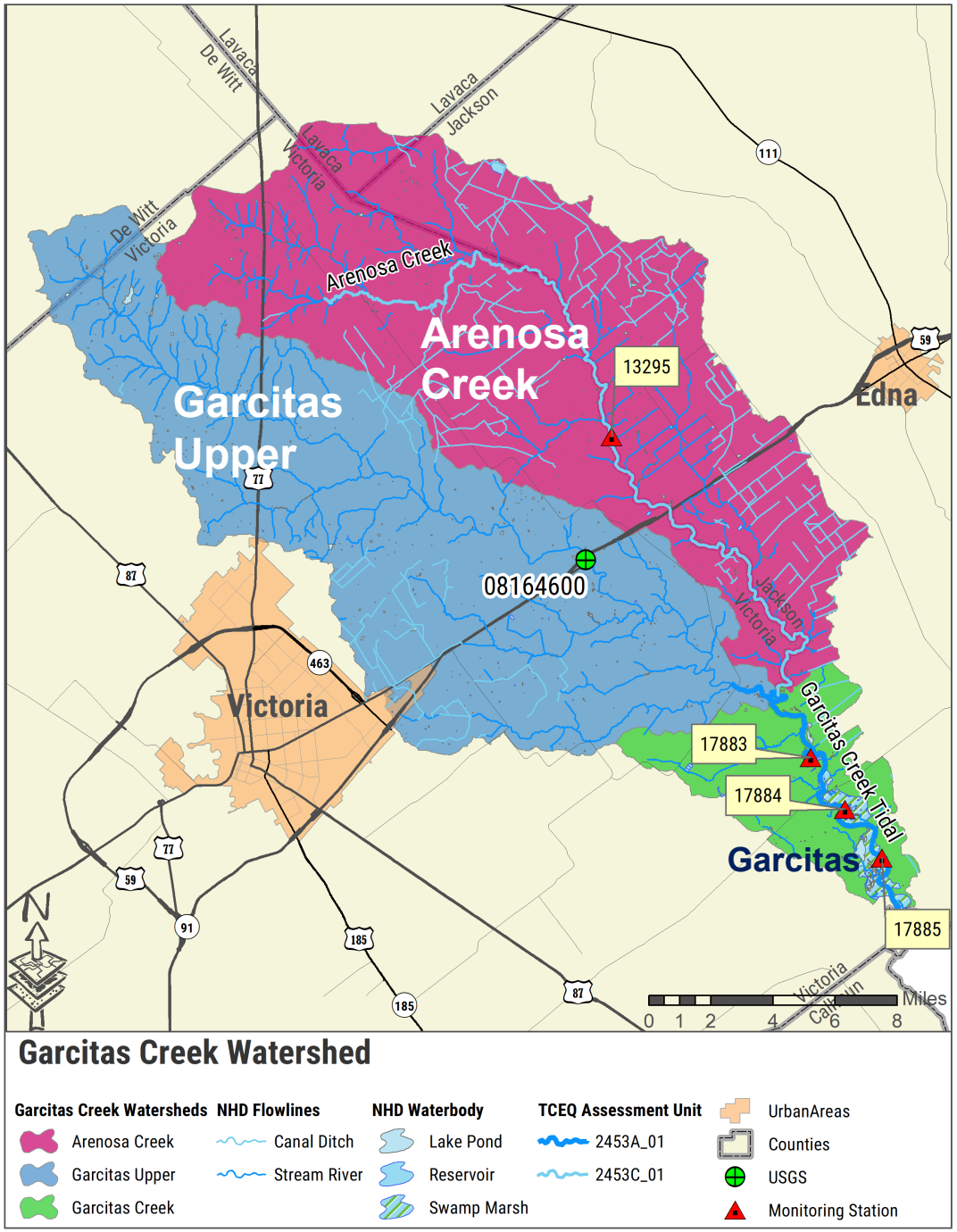
Texas A&M AgriLife Research | Extension

Introductions

- Name
- Representation (Agency, Landowner, Etc.)

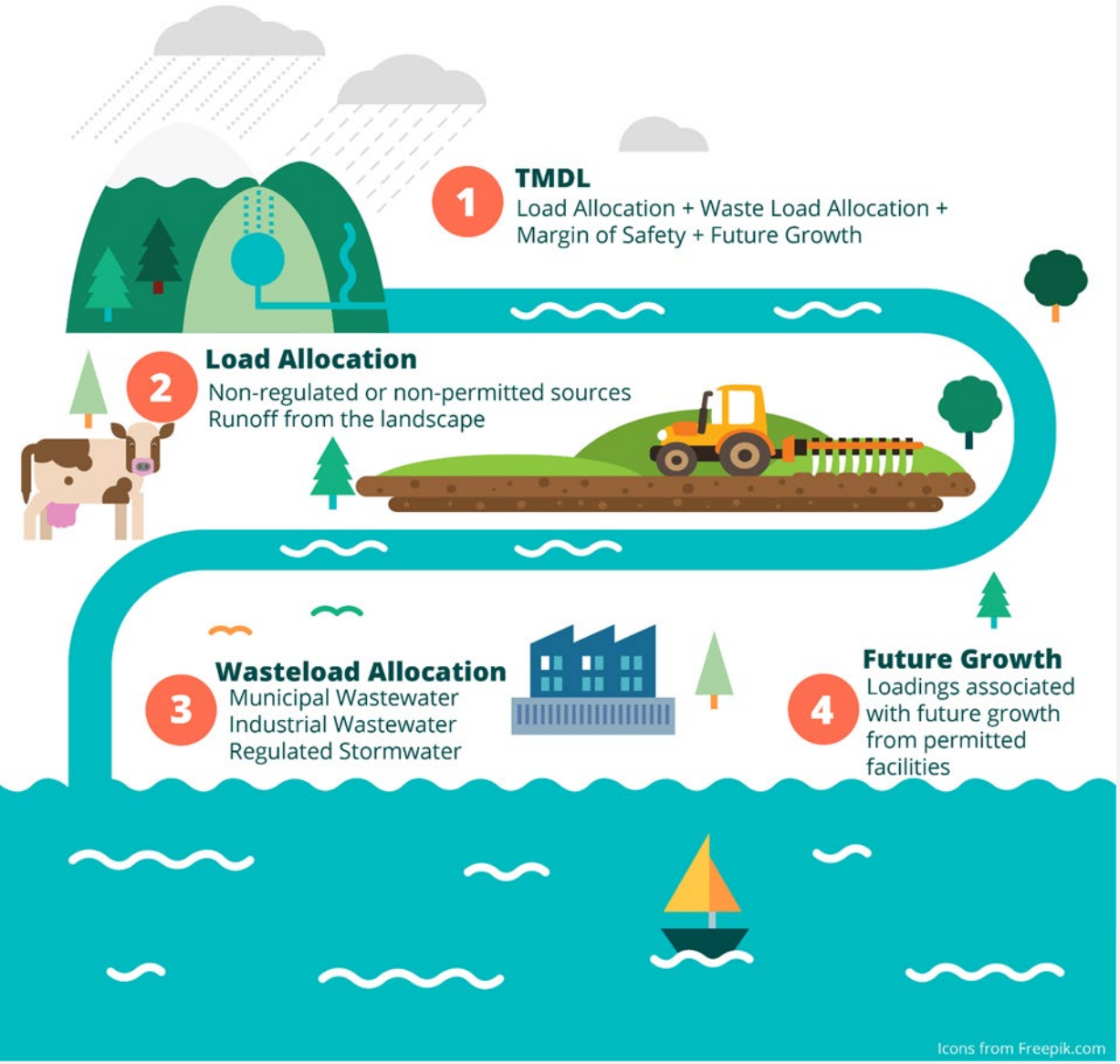


Project Purpose & Recap

- Elevated bacteria in Arenosa Creek
- Depressed dissolved oxygen in Garcitas Creek

Project Purpose & Recap

- Total Maximum Daily Load for Indicator Bacteria in Arenosa Creek



Project Purpose & Recap

TMDL Implementation Plan

- Identify existing loads and needed load reductions
- Identify voluntary management measures to address bacteria impairment in Arenosa Creek

Project Purpose & Recap

Watershed Protection Plan

- Identify potential sources and causes of bacteria and dissolved oxygen impairment
- Quantify needed reductions
- Identify obtainable management measures to achieve reductions

Previous Meetings

- **November 2018**
  - Review water quality data and ongoing area concerns
  - Decide on stakeholder group structure, planning mechanisms
- **February 2019**
  - Review other watershed plans
  - Watershed characterization
  - Pollutant loads and needed reductions

Today

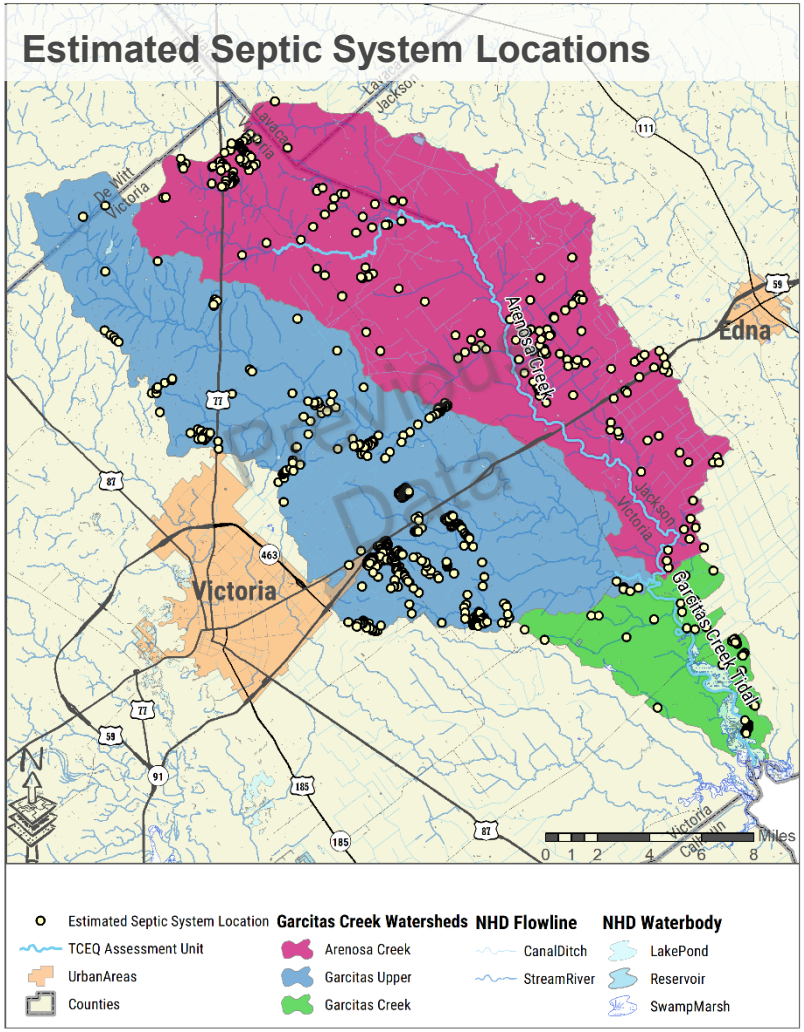
- Address action items from last meeting
  - Septic system update,
  - feral hog update,
  - livestock estimates, and
  - other items
- Overview of WPP chapters 1-3
- Identify Voluntary Management Measures for inclusion in the I-Plan/WPP

WATERSHED CHARACTERIZATION

OSSF (On-site Sewage Facilities, Septic Systems)

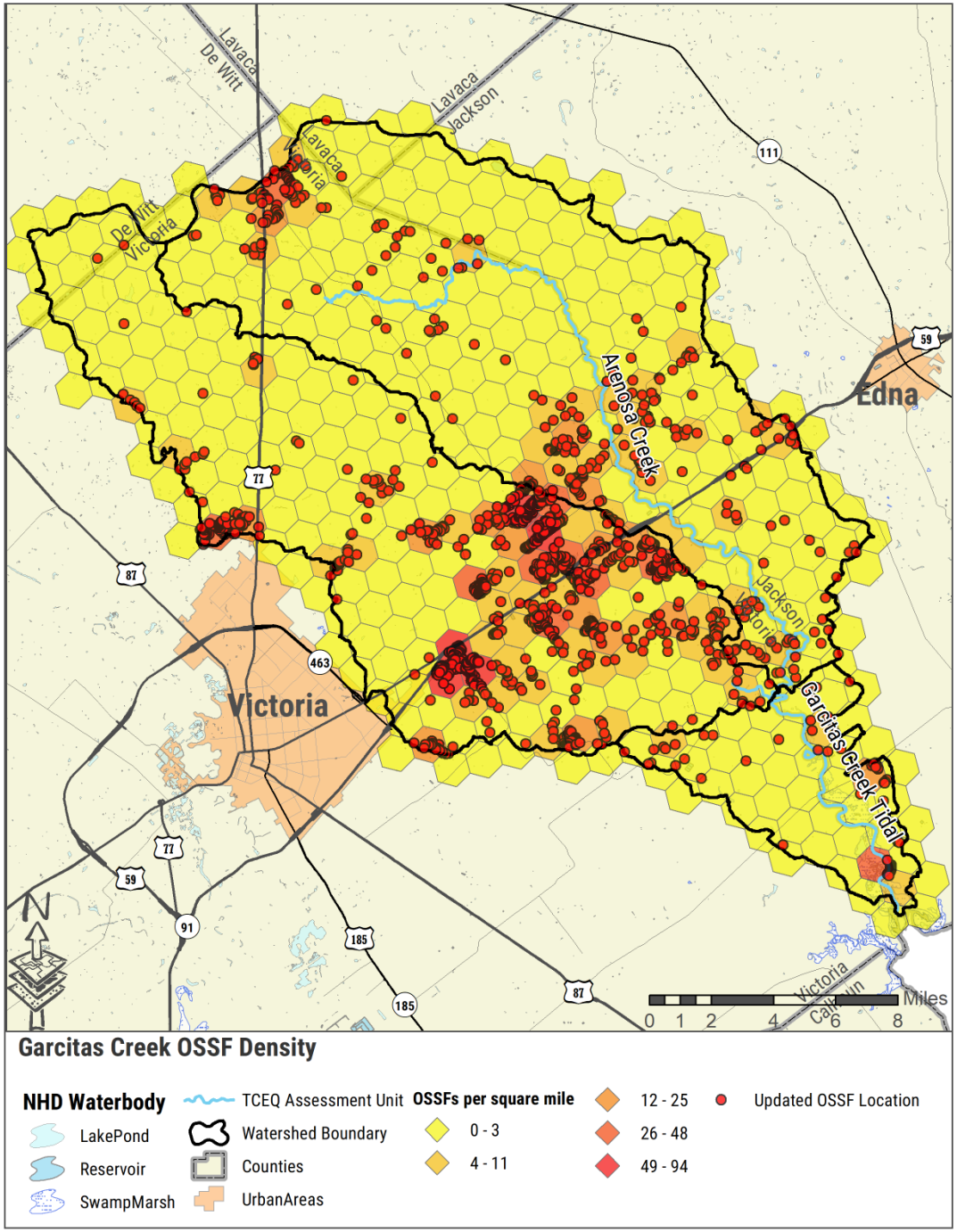
- Maps presented at the last meeting indicated missing data and underestimated number of systems.

Watershed	Estimated Septic Systems
Arenosa Creek	206
Garcitas Creek (including Arenosa)	808



OSSF
(On-site Sewage Facilities, Septic Systems)

Watershed	Estimated Septic Systems
Arenosa Creek	322
Garcitas Creek (including Arenosa)	1,502



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Feral Hogs

Watershed	Previous Estimate	Updated Estimate
Arenosa Creek	3,184 (33.3 ac/hog)	12,738 (8.325 ac/hog)
Garcitas Creek (including Arenosa)	6,713 (33.3 ac/hog)	26,852 (8.325 ac/hog)

Cattle

- Previous estimates developed from potential stocking rates and Ag Census data.

Low Density: 1 AU/5 acres Pasture + 1 AU/15 acres Range

Med Density: 1 AU/4 acres Pasture + 1 AU/11 acres Range

High Density: 1 AU/3 acres Pasture + 1 AU/10 acres Range

	Ag Statistics	Low Density	Medium Density	High Density
Arenosa Creek	11,172	13,480	16,963	22,300
Garcitas (including Arenosa Creek)	23,177	26,161	32,993	43,173

Previous Data

Cattle

Victoria County Agricultural Valuation Guidelines:

- 6 animal units and not less than 20 acres

- Animal Units per acre:
  - Improved Land – 1 AU/3 acres
  - Average (Native Pasture Land) – 1 AU/7-12 acres
  - Poor (Heavy Brush) – 1 AU/20 acres
  - Very Poor – 1 AU/35 acres

Cattle

	Ag Statistics	Low Density	Medium Density	High Density	Ag Exemption
Arenosa Creek	11,172	13,480	16,963	22,300	23,353
Garcitas (including Arenosa Creek)	23,177	26,161	32,993	43,173	46,857

Other Follow-up

- **Are there local studies on woody encroachment?**
- No local studies on encroachment impacts on H2O. Area studies focused on impacts on terrestrial habitat, species, and forage.

- **Can TWRI provide Land Use Land Cover definitions and breakout the numbers by watershed?**
- The definitions and land use breakdowns are provided as a separate handout*

*https://www.mrlc.gov/data/legends/national-land-cover-database-2011-nlcd2011-legend

DRAFT CHAPTERS 1-3 WATERSHED PROTECTION PLAN

VOLUNTARY MANAGEMENT MEASURES

Management Measures

- Voluntary actions that directly or indirectly reduce pollutant loads that reach waterbodies

Management Measures

- Effective management measures are both feasible and locally acceptable.

Instructions

- We will discuss 10 potential management measures, followed by group input.
- ~~Use the keypad to decide if you agree or disagree with including the management measure (approximately 1 minute to respond).~~
- If there is more than 25% dissent, we will follow-up with discussion at the next meet to develop a consensus-based decision on the management measure.
- As we go through the management measure please include any comments on the sheet provided.
- If you have additional management measures that you feel should be included, please add it to your comment sheet.

Goal: Reduce failing septic systems/straight pipes.

How: Develop OSSF repair/replacement grant program.

Potential Responsible Parties: Watershed Coordinator/TWRI, Victoria/Jackson Counties, AgriLife Extension, Homeowners

Costs: $5,000 - $12,000 per system

Goal: Promote proper operation/maintenance of septic systems.

How: Deliver educational materials for OSSF operation/maintenance and OSSF workshops.

Potential Responsible Parties: Watershed Coordinator/TWRI, AgriLife Extension

Costs: Venue fee + speaker travel costs

Goal: Increase adoption of conservation practices by agricultural and livestock producers.

How: Promote and implement NRCS Conservation Plans and TSSWCB Water Quality Management Plans, conduct field days, and workshops as appropriate.

Potential Responsible Parties: NRCS, SWCD, TSSWCB, operators/landowners

Costs: Highly variable, TSSWCB provides $15k in cost share for WQMPS, NRCS provides varying cost share rates through EQIP, applicant responsible for remaining costs

Goal: Increase adoption of nutrient management practices.

How: Promote nutrient management through education/outreach and soil testing campaigns.

Potential Responsible Parties: SWCDs, AgriLife Extension, Watershed Coordinator/TWRI

Costs: approximately $12-$14 per 20 acres tested

Goal: Decrease feral hog populations.

How: Promote feral hog management (effective trapping/removal and associated best practices) by delivering feral hog workshops.

Potential Responsible Parties: AgriLife Extension, Watershed Coordinator/TWRI

Costs: Venue fee + speaker travel costs

Goal: Decrease feral hog populations.

How: Hire full or part-time trapper, purchase trapping supplies and equipment.

Potential Responsible Parties: Victoria/Jackson Counties, Texas Wildlife Services,

Costs: Approximately $40,000 annually

Goal: Decrease feral hog populations

How: Develop and institute a hog bounty program.

Potential Responsible Parties: Victoria/Jackson Counties, Watershed Coordinator/TWRI, other interested parties.

Costs: Typically $5 per hog

Goal: Decrease impacts from suburban stormwater

How: Promote suburban best management practices (pet waste/turf management/irrigation) through education/outreach and Healthy Lawns/Healthy Waters workshop.

Potential Responsible Parties: Watershed Coordinator/TWRI, AgriLife Extension

Costs: Venue fee + speaker travel costs

Goal: Decrease impacts from suburban stormwater

How: Promote conservation easements (to preserve agricultural, grazing or wildlife land uses that minimize development) through workshops and event speakers.

Potential Responsible Parties: Watershed Coordinator/TWRI, AgriLife Extension, and other interested parties.

Costs: Venue fee + speaker travel costs

Goal: Provide updated water quality information to stakeholders

How: Engage TCEQ and Clean Rivers Program partners to reinstitute water quality monitoring on Arenosa/Garcitas;

Initiate water quality monitoring project related to potential impacts of land application on in-stream water quality;

Initiate volunteer water quality monitoring program (Texas Stream Team)

Potential Responsible Parties: Watershed Coordinator/TWRI, LNRA/USGS, Texas State/Meadows Center

Costs: $400-$2000 per site per visit + labor + travel

Thank you!

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