



**Animal and Agriculture Work Group  
Meeting Agenda  
Thursday, May 23, 2019  
9:00 AM to 11:00 AM  
Houston Advanced Research Center  
8801 Gosling Rd., The Woodlands, TX 77381**

### **Call to Order/Welcome/Introductions**

### **Review Summary from 4/26/2018 Meeting**

### **Discussion: Preparing BIG 2019 Annual Report – I-Plan Strategies 7.0 Animal and Agriculture Sources**

Work group will:

- review the 2018 Annual Report,
- review the timeline for preparing the 2019 report,
- report on implementation activities accomplished in the 2018 calendar year, and
- discuss focus and priorities for 2019 calendar year.

### **Discussion: Review I-Plan Language for Strategies 7.0 Animal and Agriculture**

Work group will:

- review approved I-Plan wording and anticipate potential I-Plan revisions during 5<sup>th</sup> year of implementation (2019),
- agree on any updates, and
- develop recommendations, if necessary, that will be presented at the annual BIG meeting for approval.

### **Adjourn**

### **Upcoming Meeting Schedule**

6/4/2019      BIG Spring Meeting (1:00 PM)  
6/11/2019      East and West Fork of the San Jacinto River Work Group  
6/12/2019      Green Infrastructure Workshop (Pearland) Registration is free -  
<https://www.eventbrite.com/o/green-infrastructure-for-texas-18604831521>

### ***Instructions to call into BIG meetings:***

*To call in, dial 713-481-0090 (or 800-240-3895). You will be asked to enter your pass code, followed by the # sign. The pass code is 1084242. If you dial in before H-GAC, you will hear "music on hold". Once H-GAC dials in, the music will cease and the conference call will begin. During the course of the conference, you may hear beeps. A single beep indicates someone has joined the conference call. A double beep indicates someone has left the conference call. Remember--if you do press hold, everyone will hear your hold music.*





**Animals and Agriculture Workgroup  
Draft Meeting Summary  
Thursday, April 26, 2018  
10:00 AM to 12:00 PM  
HARC: 8801 Gosling Rd., The Woodlands, 77381**

**Call to Order/Welcome/Introductions**

Ernest Bailes (San Jacinto Co.) Richard Chapin (COH), Hannah Cruse (TFS), Frank Green (Montgomery Co.), Brian Koch (TSSWCB), Kyle Wright (NRCS)

**Review Summary from 4/18/2017 Meeting**

The work group reviewed the draft summary and did not propose any changes.

**Discussion: Preparing BIG 2017 Annual Report – I-Plan Strategy 7.0 Animal and Agriculture Sources**

Workgroup reviewed the 2017 Annual Report and timeline for preparing the 2018 report. The work group reported on implementation activities accomplished in the 2017 calendar year. The group discussed updating numbers from the NRCS and TSSWCB. The group also agreed to look for additional information on emerging feral hog controls, including baits.

**Discussion: Review I-Plan Strategy 7.0 Animals and Agriculture Language**

Workgroup reviewed approved I-Plan wording and discussed potential editorial changes. The group noted that many of the resource programs listed in the I-Plan had changed names, merged with another program or were not continued. NRCS agreed to update the programs listed. The group also discussed how to incorporate silviculture into the I-Plan. The group suggested the change did not require the addition of a new action, but rather changed to 7.1. Texas Forest Service agreed to assist with the language.

**Adjourn**

**Upcoming Meeting Schedule**

6/5/2018	BIG Spring Meeting (1:00 PM)
5/2/2018	OSSF and Illicit Discharge Work Group
5/7/2018	Research and Monitoring Work Group



### Implementation Strategy 7.0: Agriculture and Animal Sources

Bacteria loads from agricultural and forestland practices and animals, particularly feral hogs are identified in the TMDLs as nonpoint sources of concern. Areas of concern include the potential for bacteria to attach to sediment in runoff, the potential effect that nutrients will have on bacteria growth rates in water bodies, and livestock’s direct deposition of fecal waste in waterways. Existing management programs are traditionally voluntary, unless large populations of animals are involved. The expansion of existing programs could help lower bacteria levels in waterways, particularly in subwatersheds where substantial areas of land are devoted to crop, pasture, and range. (See Figure 6.) According to the technical documents for each of the TMDLs, there are no Concentrated Animal Feeding Operations (CAFOs) in the areas covered by this I-Plan. However, livestock populations have been estimated for the area for the Clear Creek and the Lake Houston TMDLs. Cattle and poultry are most abundant livestock in the region. Estimated populations are described in Table 7.

**Table 7: Estimated Livestock Populations**

TMDL	Cattle	Poultry
Clear Creek <sup>93</sup>	2,696	2,093
Lake Houston <sup>94</sup>	52,510	50,293

Other animals of concern throughout the region include horses, swine, sheep, and goats, with their densities varying by watershed. For example, horse populations are prevalent in the Cypress Creek and Spring Creek watersheds.

Healthy trees and forests are critically important to protecting water resources and sustaining them in the future. Approximately 50 percent of the freshwater resources in Texas originate on forestlands, which provide a continuous and abundant supply of clean water. In fact, many state and national forests were established to protect the country’s water sources. Forestry Best Management Practices (BMPs) are the principal means of protecting water resources during forestry activities. Forestry BMPs are conservation practices that protect soil and water resources, two key elements necessary for growing a healthy, sustainable, and productive forest. BMPs can include methods such as leaving a buffer zone of trees next to a stream, installing a culvert to cross a waterway, or establishing grass on forest roads to prevent erosion.

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<sup>93</sup> (University of Houston & Parsons 2009b)

<sup>94</sup> (James Miertschin & Associates, Inc. 2009)



A prominent concern raised by stakeholders pertains to feral hogs. In addition to being a nuisance to landowners because of their rooting and wallowing and occasional predation of small livestock, feral hogs discharge large amounts of bacteria and nutrients into the environment through fecal waste. No precise estimate of the number of feral hogs is available for the BIG project area, yet anecdotal evidence suggest a large hog population in the region. Hogs are known to reproduce quickly, have no natural predators, and spend the majority of their time either in or around water.<sup>95</sup> Hogs are likely a significant source of bacteria for some of the impaired waterways encompassed by this I-Plan.

The ~~four~~ five governmental agencies in the following list will be responsible for implementing management measures aimed at reducing nonpoint source loadings from agricultural and forest land operations. Their duties and activities related to this I-Plan are described in greater detail in Appendix H.

- **Texas State Soil and Water Conservation Board (TSSWCB)** – The TSSWCB is the lead agency in Texas responsible for planning, implementing, and managing programs and practices for preventing and abating agricultural and silvicultural (forestry) nonpoint source pollution.<sup>96</sup>
- **Natural Resources Conservation Service (NRCS)** – The NRCS provides conservation planning and technical assistance to landowners, groups, and units of government to develop and implement conservation plans that protect, conserve, and enhance their natural resources.
- **Soil and Water Conservation Districts (SWCDs)** – Through decades-old agreements, SWCDs offer agricultural landowners and operators technical assistance through partnerships with the NRCS and the TSSWCB.
- **Texas AgriLife Extension Service** – AgriLife Extension, an agency of the Texas A&M University System, provides quality, relevant outreach and continuing education programs and services to Texans.
- **Texas A&M Forest Service** – The Forest Service seeks to inform and educate landowners on sustainable land management practices.

Additional agencies may be able to facilitate voluntary actions pertaining to wildlife and property management activities. Agencies include Texas Parks and Wildlife Department, the U.S. Fish and Wildlife Service, wildlife management associations and co-ops, and other entities.<sup>97</sup>

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<sup>95</sup> (Taylor n.d.)

<sup>96</sup> See Tex. Agric. Code § 201.026

<sup>97</sup> The Private Landowner Network maintains a comprehensive list of resources available to private landowners at <http://www.privatelandownernetwork.org/grantprograms/>.

### Implementation Activity 7.1: Promote Increased Participation in Existing Programs for Erosion Control, Nutrient Reduction, and Livestock Management

A variety of programs provide farmers and ranchers with the technical and financial assistance necessary to combine agricultural and forest land production with environmental control actions. These actions may address water quality, reduction of soil erosion and sedimentation, livestock waste management, and other issues that are likely to reduce bacteria in regional waterways.

Funding mechanisms identified by stakeholders include:

- Environmental Quality Incentives Program (EQIP), administered by the NRCS;
- Water Quality Management Plan Program (WQMP), a part of the Texas Non-Point Source Management Program administered by the TSSWCB through the SWCDs;
- Conservation Innovation Grants, administered by the NRCS;
- Conservation Security tewardship Program (CSP), administered by the NRCS;
- ~~Farm and Ranch Lands Protection Program, administered by the NRCS;~~
- ~~Grassland Reserve Program~~ Agricultural Land Easement Program, administered by the NRCS;
- Wetlands Reserve Easement Program, administered by the NRCS; and
- ~~Wildlife Habitat Incentives Program, administered by the NRCS.~~

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The funding mechanisms in the preceding list should not be considered an exhaustive list. Additional programs may be added as this I-Plan is updated.

These voluntary programs provide technical and financial assistance. Program participation levels should be increased by increasing familiarity with the program through marketing. Primary methods for disseminating information and increasing participation include:

- Texas Agrilife Extension Service agents' contact with the public;
- Public outreach from local SWCDs;
- Information distribution through local 4-H clubs, rodeos, the Texas Farm Bureau, the Texas and Southwestern Cattle Raisers Association, the Independent Cattleman's Association of Texas, Future Farmers of America, and at Agricultural Field Days; and
- Word of mouth.

Implementation of erosion control, nutrient reduction, and livestock management programs likely will not result in immediate cost savings to the landowner. However, implementation does have other benefits that should be promoted, including increased plant health, increased infiltration, reduced erosion, and increased filtration and trapping of nutrients. Additionally, participation should help landowners avoid violating water quality regulations and the associated fines. If a participating landowner violates water quality regulations while following an approved plan, the regulating agency may give the landowner an opportunity to implement BMPs to come into compliance. Also, when new



mandatory implementation practices come into effect, participating landowners are often not forced to update their operations, as they are already in compliance with water quality regulations. Success stories should be highlighted.

The Montgomery County and Harris County SWCDs have informational materials for small landowners regarding environmental best practices for agriculture. These could be updated and made available to landowners in all watersheds. Providing landowners with clear and practical information may increase the likelihood of them implementing agricultural management measures, whether independently or through an existing program.

Texas A&M Forest Service, in cooperation with the forest sector and numerous other partners, develops and periodically updates non-regulatory BMP guidelines, provides education, outreach, and training on their application; and monitors their implementation on randomly selected forest operations. Over the years, the use of BMPs has become common throughout the forest sector.

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Targeted program promotion will increase through word-of-mouth campaigns and Extension Agent involvement. Additional promotion methods include emails; notices in newsletters and local newspapers; participation in local festivals, rodeos, and fairs; and development of school programs. Promotion efforts will be conducted by TSSWCB, local SWCDs, NRCS, AgriLife Extension, H-GAC, and other agencies as appropriate with a goal of increasing participation in the programs each year. The BIG will provide this I-Plan to the implementing agencies along with a formal request for their assistance in encouraging program participation in accordance with this Implementation Activity.

### Implementation Activity 7.2: Promote the Management of Feral Hog Populations

With continuous effort, feral hogs can be managed. The Texas Wildlife Damage Management Service, a division of the Texas AgriLife Extension Service, is a valuable resource for training, technical assistance, and direct control in wildlife damage management including feral hog populations.<sup>98</sup> Control methods include snaring, live trapping, shooting, hunting with dogs, aerial hunting, exclusion, and habitat management.<sup>99</sup>

The BIG region will take advantage of the services provided by the Texas Wildlife Damage Management Service by arranging two feral hog management workshops for landowners, local governments, and other interested individuals annually for five years. H-GAC will request that workshops be held in strategic locations throughout the BIG region. Workshops will be heavily promoted in the Extension Service newsletter, local newspapers, and radio stations. Management activities, as described, can also

<sup>98</sup> (Coping with Feral Hogs 2010)

<sup>99</sup> (Muir and McEwen 2007)

be implemented by local governments as appropriate. If interest in workshops remains strong after five years, H-GAC will continue to arrange workshops throughout the area covered by this I-Plan.

## Appendix H: Implementing Agencies for Agricultural Measures

The governmental agencies listed below will be responsible for implementing management measures aimed at reducing nonpoint source loadings from agricultural operations. Their duties and activities related to this I-Plan are described in Implementation Strategy 7.0.

### Texas State Soil and Water Conservation Board

The Texas State Soil and Water Conservation Board (TSSWCB) is the lead agency in Texas responsible for planning, implementing, and managing programs and practices for preventing and abating agricultural and silvicultural (forestry) nonpoint source pollution (Texas Agriculture Code Section 201.026). In accordance with this responsibility, the TSSWCB administers a certified Water Quality Management Plan (WQMP) Program that provides, through local soil and water conservation districts (SWCDs), for the development, implementation, and monitoring of individual WQMPs for agricultural and silvicultural lands. Each WQMP is developed, maintained, and implemented under rules and criteria adopted by the TSSWCB. A WQMP achieves a level of pollution prevention or abatement consistent with the state's water quality standards.

A WQMP is a site-specific plan designed to assist landowners in managing nonpoint source pollution from agricultural and silvicultural activities. WQMPs are traditional conservation plans based on the criteria outlined in the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Field Office Technical Guide. The Guide represents the best available technology and is tailored to meet local needs. A WQMP includes appropriate land treatment practices, production practices, management measures, technologies, or combinations thereof. WQMPs are developed in cooperation with the landowner with assistance from the NRCS and approved by the local SWCD and are certified by the TSSWCB. This approach to preventing and abating nonpoint source pollution uses a voluntary approach while affording the landowner a mechanism for compliance with the state's water quality standards.

The TSSWCB regularly performs status reviews on WQMPs to ensure that the producer is implementing the measures prescribed in the WQMP. The TSSWCB administers technical and cost-share assistance programs to assist producers in implementing their WQMPs. The TSSWCB utilizes both state appropriations and federal grants to fund the WQMP Program.

### Soil and Water Conservation Districts

An SWCD, like a county or school district, is a subdivision of state government. SWCDs are administered by a board of five directors who are elected by their fellow landowners. There are currently 216 individual SWCDs organized in Texas. Through decades old agreements, SWCDs offer agricultural landowners and operators technical assistance through a partnership with the NRCS and the TSSWCB. It is through this conservation partnership that local SWCDs are able to furnish technical assistance to farmers and ranchers in the preparation of a complete soil and water conservation plan to meet each land unit's specific capabilities and needs. The SWCDs that are active in the BIG project area watersheds are shown in Table 20.

**Table 20: SWCDs in the BIG Project Area Watersheds**

SWCD	Counties within SWCD
Coastal Plains SWCD #317	Fort Bend
Waters-Davis SWCD #318	Brazoria, Galveston
Lower Trinity SWCD #435	Liberty
Polk-San Jacinto SWCD #436	San Jacinto
Navasota SWCD #440	Grimes, Waller
Harris County SWCD #442	Harris
Montgomery County SWCD #452	Montgomery
Walker County SWCD #453	Walker

### USDA Natural Resources Conservation Service

The NRCS is a federal agency that works hand-in-hand with Texans to improve and protect their soil, water, and other natural resources. For decades, private landowners have voluntarily worked with NRCS specialists to prevent erosion, improve water quality, and promote sustainable agriculture.

The NRCS provides conservation planning and technical assistance to landowners, groups, and units of government to develop and implement conservation plans that protect, conserve, and enhance their natural resources. When providing assistance, NRCS focuses on the sound use and management of soil, water, air, plant, and animal resources. NRCS helps customers manage their resources in a way that prevents resource degradation, ensures sustainability, allows for productivity, and respects the customers' needs. Conservation planning can make improvements to livestock operations, crop production, soil quality, water quality, pastureland, forestland, and wildlife habitats. The NRCS also integrates ecological and economic considerations in order to address private and public concerns.

## Implementation Plan for TMDLs for Bacteria in the Houston-Galveston Region

The NRCS administers numerous programs authorized by the U.S. Congress in the federal Farm Security and Rural Investment Act of 2002 (Farm Bill) that provide financial assistance for many conservation activities:

- Environmental Quality Incentives Program (EQIP), administered by the NRCS;
- Conservation Innovation Grants, administered by the NRCS;
- Conservation Stewardship Program (CSP), administered by the NRCS;
- Agricultural Land Easement Program, administered by the NRCS;
- Wetlands Reserve Easement Program, administered by the NRCS; and
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- ~~Conservation Innovation Grants~~
- ~~Conservation Security Program (CSP)~~
- ~~Environmental Quality Incentives Program (EQIP)~~
- ~~Farm and Ranch Lands Protection Program~~
- ~~Grassland Reserve Program~~
- ~~Wetlands Reserve Program~~
- ~~Wildlife Habitat Incentives Program~~

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EQIP was reauthorized in the Farm Bill to provide a voluntary conservation program for farmers and ranchers that promotes agricultural production and environmental quality as compatible national goals. People who are engaged in livestock or agricultural production on eligible land may participate in the EQIP program. EQIP offers financial and technical assistance to eligible participants for installation or implementation of structural and management practices on eligible agricultural land. EQIP also provides incentive and cost-share payments to implement conservation practices. EQIP activities are carried out according to a plan of operations developed in conjunction with the producer that identifies the appropriate conservation practice(s) to address resource concerns. All practices are subject to NRCS technical standards described in the Field Office Technical Guide and adapted for local conditions. The local SWCD approves the plan.

### Texas AgriLife Extension Service

AgriLife Extension, an agency of the Texas A&M University System, provides quality, relevant, outreach and continuing education programs and services to Texans. AgriLife Extension serves every county in Texas: its information is provided by scientists and researchers at Texas A&M and other universities, and is made practical and relevant by Extension educators or agents who work in each county. AgriLife Extension continually assesses and responds to educational needs identified by community residents, advisory committee members, volunteers, stakeholder groups, and representatives of organizations and agencies. Extension education encompasses the broad areas of agriculture and natural resources, community economic development, family and consumer sciences, and youth development programs

such as 4-H. Among other goals and priority objectives pursued by AgriLife Extension, the following relate to agriculture and natural resources.

- Consumer, homeowner, agricultural producers, horticultural producers, communities, and irrigation districts understand and adopt best management practices to protect water quality and enhance conservation so water supplies will meet future water needs in Texas that are essential for expanding agricultural growth, jobs, and the economy in both rural and urban areas.
- Landowners, professional ecosystem managers, community planners, and other interest groups become more knowledgeable, make informed decisions, and adopt best management practices that insure the proper management of rural and urban natural ecosystem resources (rangeland and forestry, etc.) through stewardship education in order to support the biological, sociological, and economic sustainability of those resources.
- AgriLife Extension works to advance the planning and management of natural resource-based recreation opportunities in Texas.
- Through pesticide safety education, licensed and unlicensed pesticide users (including farmers, ranchers, pest control businesses, and the general public) will understand and adopt safer pesticide and non-chemical management methods for managing pests and will be able to continue their pursuit of business enterprises and employment.

AgriLife Extension also administers the Texas Wildlife Damage Management Service (TWDMS), a United States Department of Agriculture (USDA) program. The TWDMS serves as the Texas leader in the science, education, and practice of wildlife management in order to protect agricultural, industrial, and natural resources. Provided in both rural and urban areas, the program's services also guard the public's health, safety, and property from the negative effects of wildlife. The TWDMS provides both technical assistance and direct control services in wildlife damage management, the resolving of conflict between humans and wildlife.

#### Texas A&M Forest Service

Texas A&M Forest Service conserves and protects the resources and lands of the Lone Star State.

Conserving Texas' trees and forests, the state agency helps property owners maintain land and natural resources to ensure forestlands remain productive and healthy not only for the environment, but for generations of Texans to come.

TFS is also one of the lead agencies for incident management in the state. From the initial response to ongoing recovery, the agency strives to protect Texas from wildfire and other types of disasters. TFS does this by not only fighting wildfire and responding to incidents, but also by building capacity and increasing public awareness about community protection and wildfire prevention.

Implementation Plan for TMDLs for Bacteria in the Houston-Galveston Region

In partnership with other agencies, local governments and fire departments, TFS provides programs to aid communities across the state, giving them tools and resources to actively protect themselves and their properties.

Texas A&M Forest Service, in cooperation with the forest sector and numerous other partners, develops and periodically updates non-regulatory BMP guidelines, provides education, outreach, and training on their application; and monitors their implementation on randomly selected forest operations. Over the years, the use of BMPs has become common throughout the forest sector.

