

# Dickinson Bayou Bacteria: TMDL Implementation Status 2020

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## Responsible Parties Abbreviations

DBWP - Dickinson Bayou Watershed Partnership

FROG - Fats, Roots, Oils, and Grease

GCHD - Galveston County Health District

NRCS - Natural Resources Conservation Service (USDA)

WWTF - Wastewater Treatment Facility

TAMUG - Texas A&M University at Galveston

TSSWCB - Texas State Soil and Water Conservation Board

EPA - Environmental protection agency

GBEP - Galveston Bay Estuary program

HGAC - Houston-Galveston Area Council

OSSF - On-site Sewage Facility

SSS - Sanitary Sewer System

TCWP - Texas Coastal Watershed Program

TPWD - Texas parks and Wildlife Department

## Management Measures

### **Management Measure 1: Improve Management of On-site Sewage Facilities (OSSFs).**

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>TAMUG: Create watershed OSSF map. Create OSSF Priority Area Map.</p> <p>DBWP OSSF Workgroup: Determine Prioritization Criteria. Prioritize target areas. Provide feedback and monitor progress.</p> <p>DBWP: Responsible for education.</p>	<p>1.1. Identify and rank target areas by pollutant reduction priority and expand homeowner OSSF education</p>	<p>OSSF technical team assembled.</p> <p>OSSF prioritization criteria developed.</p> <p>OSSF map data gathered/compiled.</p> <p>Map1 identifying OSSFs and ranking adequacy of OSSF areas in the watershed completed.</p> <p>Target areas for OSSF upgrades/hookups developed.</p> <p>Target areas for OSSF upgrades/hookups prioritized.</p> <p>Map2 of priority areas for OSSF actions developed.</p>	<p>In 2015, the Texas Coastal Watershed Program completed an OSSF risk map of the Dickinson Bayou watershed. The map is available for viewing online at <a href="https://agrilife.org/dickinsonbayou/septic-systems/">https://agrilife.org/dickinsonbayou/septic-systems/</a></p>

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>OSSF Owners: Upgrade and/or fix failing OSSFs.</p> <p>Local Governments: Provide technical assistance for identification of funding.</p> <p>DBWP: Responsible for education.</p>	<p>1.2. Hookup, upgrade, and/or fix identified failing OSSFs.</p>	<p>Funding sought for OSSF upgrades or sewer connections.</p> <p>OSSF target areas addressed.</p> <p>Number of OSSFs in areas addressed.</p>	<p>There are no updates for this management measure at this time.</p>
<p>Authorized Agents: Acquire additional staff, educate staff, and conduct OSSF inspections.</p> <p>DBWP OSSF Workgroup: Apply for grant funding for additional staff for Authorized Agents. Request and collect reports from Authorized Agents.</p>	<p>1.3. Improve enforcement to mitigate failing OSSFs.</p>	<p>Funding sought for additional OSSF inspections</p> <p>Contacts with OSSF owners made by enforcement officials</p>	<p>There are no updates for this management measure at this time.</p>

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>DBWP: Responsible for Education, including creation of some educational materials.</p> <p>AgriLife Extension Service: Creation of course and teaching of the course</p> <p>Real Estate Professionals: Distribute information.</p> <p>DBWP OSSF Workgroup: Collection of Information.</p>	<p>1.4. Address maintenance of OSSFs through education efforts.</p>	<p>Criteria for prioritizing target areas for education developed.</p> <p>Target areas for education prioritized.</p> <p>Begin notification and education of OSSF owners in high priority target areas.</p> <p>Workshops offered each year and educational materials created and disseminated.</p> <p>Additional Educational materials created and disseminated.</p> <p>Real estate agents educated.</p> <p>Development of Course.</p> <p>Approval for continuing education credits from Texas Real Estate Commission.</p> <p>Course(s) offered.</p>	<p>There are no updates for this management measure at this time.</p>
<p>DBWP OSSF workgroup: Develop task force and determine criteria.</p> <p>Inspectors: Incorporate criteria in inspections.</p> <p>DBWP OSSF Workgroup: Collection of information regarding number of home inspections.</p> <p>DBWP: Responsible for education.</p>	<p>1.5. Incorporate OSSF criteria into standards of practice for home sale inspections.</p>	<p>Development of task force including representatives from the Texas Association of Real Estate Inspectors.</p> <p>Draft inspection criteria.</p> <p>OSSF inspection manual and/or checklist.</p> <p>Voluntary incorporation of inspection criteria by inspectors or efforts to educate legislators and/or agency heads.</p> <p>Elected official education on OSSF inspection issues.</p>	<p>There are no updates for this management measure at this time.</p>

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>GCHD: Complete sampling as funding is available.</p> <p>EPA, TCEQ, GBEP, HGAC: provide funding and technical support.</p>	<p>1.6. Target areas for intensive water quality sampling based on OSSF pollution, upon completion of mapping conducted under Management Measure 1.1.</p>	<p>Development of monitoring plan for water bodies in high OSSF priority areas.</p> <p>Monitoring conducted in water bodies in high OSSF priority areas.</p>	<p>There are no updates for this management measure at this time.</p>

**Management Measure 2: Improve Wastewater Treatment Facilities (WWTFs)**

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>WWTF Owners/Operators: monitoring compliance with bacteria limits and making appropriate upgrades.</p> <p>DBWP WWTF workgroup: monitor compliance</p>	<p>2.1. Upgrade plants.</p>	<p>Facilities requiring upgrades to meet bacteria limits in their permits upgraded within the five-year implementation period.</p> <p>Reports assessing WWTF compliance with bacteria limits.</p>	<p>Reports assessing WWTF compliance with bacteria limits were produced April 15, 2020.</p>
<p>DBWP WWTF Workgroup: Develop criteria and educate public</p> <p>Local Governments: distribute criteria; including with permit applications; Implement criteria</p>	<p>2.2. Consider regionalization of discharge effluent (WWTFs), especially for new development.</p>	<p>Development of local criteria for regionalization.</p> <p>Distribution of criteria for regionalization to local governments.</p>	<p>There are no updates for this management measure at this time.</p>

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>TCEQ: education and permit requirements</p> <p>SSS owners/operators: develop and implement SSOI plan/program</p> <p>WWTF Workgroup: Monitor and report on SSOI plans/programs</p>	<p>2.3. Develop and implement an improved sanitary sewer overflow initiative plan/program for individual SSSs.</p>	<p>Funding sought for development of individual SSOI programs</p> <p>One SSOI plan/program developed every 5 years.</p> <p>One SSOI plan/program implemented, every 5 years.</p>	<p>There are no updates for this management measure at this time.</p>
<p>Watershed Communities: -Share existing regulations and policies. -Examine, establish, and/or update regulations and policies as necessary. -Create ordinances to address FROG. -Distribute educational materials.</p> <p>WWTF Workgroup: Request and compile existing regulations and policies.</p> <p>DBWP: responsible for education.</p>	<p>2.4. Address fats, roots, oils, and grease (FROG).</p>	<p>Compile and help harmonize all existing FROG regulations and policies in communities within the watershed.</p> <p>Communities examine, update, and/or establish regulations and policies.</p> <p>Identify, acquire and distribute educational materials and/or help conduct workshops associated with the management of FROG for communities in the watershed.</p>	<p>There are no updates for this management measure at this time.</p>

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>Cities, Counties, Special Purpose Districts and TCEQ: Develop and deploy appropriate mechanisms, report progress to WWTF Workgroup.</p> <p>WWTF Workgroup: collect and share information on the progress made.</p> <p>DBWP: responsible for education.</p>	<p>2.5. Encourage appropriate mechanisms to maintain function at lift stations.</p>	<p>Lift stations that need mechanisms to maintain function to be upgraded. (goal is ten percent of lift stations under this category to be upgraded every 5 years for the life of the I-Plan).</p> <p>The DBWP will be responsible for educating lift station owners about appropriate options and possible new technology.</p> <p>DBWP WWTF Workgroup will collect and share information with the public every 5 years on the progress made upgrading lift stations.</p>	<p>There are no updates for this management measure at this time.</p>

**Management Measure 3: Promote Participation in Existing Conservation and Cost-share Programs.**

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>TSSWCB, NRCS, and Texas A&amp;M AgriLife Extension Service: Work with landowners and provide information, and technical assistance.</p>	<p>3.0. (General) Promote Participation in Existing Conservation and Cost-share Programs</p>	<p>Type and number of educational materials associated with existing conservation and cost-share plans, in general (e.g., EQUIP, CIG, WHIP, SB 503[WQMP], etc.) distributed in the watershed.</p> <p>Number of workshops conducted in the watershed regarding conservation plans, in general (e.g., EQUIP, CIG, WHIP, SB 503[WQMP], etc.).</p> <p>Number of conservation plans developed in the watershed.</p>	<p>There are no updates for this management measure at this time.</p>

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>DBWP: Responsible for education and for solicit regional government officials to hire local a feral hog trappers.</p> <p>TSSWCB, NRCS, and Texas A&amp;M AgriLife Extension Service: Work with landowners and provide information, and technical assistance.</p>	<p>3.1. Promote the reduction of feral hog populations.</p>	<p>Number of educational materials developed.</p> <p>Number of educational materials distributed.</p> <p>Workshops offered each year.</p> <p>Technical assistance provided to private landowners.</p> <p>Local governments solicited for feral hog control activities</p> <p>Feral hog trappers hired by local governments</p> <p>Incentive programs for individual landowners to reduce feral hog populations through trapping or hunting?</p>	<p>There are no updates for this management measure at this time.</p>
<p>DBWP: Responsible for education.</p>	<p>3.2. Expand pet owner education efforts.</p>	<p>Educational materials created and distributed</p> <p>Additional funding sought for pet owner education</p>	<p>There are no updates for this management measure at this time.</p>
<p>DBWP: Responsible for education.</p> <p>Park and public area management organizations: Responsible for installation</p>	<p>3.3. Install pet waste stations in parks and public areas.</p>	<p>Number of park organizations contacted.</p> <p>Educational materials associated with pet hygiene in public places and the use of pet waste stations created and distributed.</p> <p>Pet waste stations installed in parks or public areas in the watershed.</p> <p>Funding sought from the Texas General Land Office's CMP program, CWA 319(h), or other sources.</p>	<p>There are no updates for this management measure at this time.</p>

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>DBWP: Responsible for education.</p> <p>HOAs: Responsible for drafting, development, implementation, and enforcement</p>	<p>3.4. Improve homeowner’s association bylaws and ordinances for pet waste control.</p>	<p>Educational materials created and/or distributed for/to HOAs in the watershed.</p> <p>HOAs contacted.</p> <p>Technical assistance to HOAs.</p> <p>HOA bylaws or ordinances developed and/or implemented.</p> <p>Funding sought, from the Texas General Land Office’s CMP program, CWA Section 319(h), or other sources.</p>	<p>There are no updates for this management measure at this time.</p>
<p>DBWP: Responsible for education.</p> <p>Cities and Counties: Development, implementation, and enforcement</p>	<p>3.5. Increase awareness, development, and enforcement of pet waste control ordinances.</p>	<p>Educational materials created for, and distributed to, local governments.</p> <p>New pet waste control ordinances adopted.</p> <p>Commitments to enforce existing ordinances designed to control pet waste.</p> <p>Funding sought, from the Texas General Land Office’s CMP program, CWA Section 319(h), or other source.</p>	<p>There are no updates for this management measure at this time.</p>



Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>DBWP animal sources workgroup: Provide technical assistance.</p> <p>Landowners: BMP installation.</p>	<p>3.6. Promote BMPs for managing water quality for lands with large groups of animals not covered by other management measures such as a wildlife park, petting zoo or other animal feeding operations.</p>	<p>Workshops held in the Dickinson Bayou watershed for landowners or owners of wildlife parks, petting zoos, or other animal feeding operation to promote BMPs for managing water quality.</p> <p>Technical assistance provided for BMP plan development or in BMP selection and/or design.</p> <p>Assistance provided in applying for funding to landowners or owners of wildlife parks, petting zoos, or other animal feeding operation.</p>	<p>There are no updates for this management measure at this time.</p>

**Management Measure 4: Restore and Repair Riparian Zones.**

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>DBWP, Texas A&amp;M AgriLife Extension Service, US Fish and Wildlife Service, TPWD, Galveston Bay Estuary Program and the Texas General Land Office: Responsible for education, technical assistance and financial assistance</p> <p>Landowners: Participation</p>	<p>Landowners participation in Riparian Restoration/repairation workshops.</p> <p>Restoration/repairation of riparian corridors.</p>	<p>Riparian restoration workshops</p> <p>Landowners participating in riparian restoration/repairation projects.</p> <p>Riparian restoration/repairation projects completed.</p>	<p>There are no updates for this management measure at this time.</p>

**Management Measure 5: Preserve and Restore Natural Wetlands.**

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>DBWP, Texas Coastal Watershed Program: Responsible for education, technical assistance and assistance with grant applications for wetland restoration.</p> <p>Landowners: Participation.</p>	<p>Landowners participation in wetland restoration/creation workshops.</p> <p>Restoration/creation of wetlands.</p>	<p>Workshops for landowners and residents living in neighborhoods located within, or adjacent to, coastal prairie wetland areas.</p> <p>Funding sought for the preservation of natural wetlands.</p> <p>Area of natural wetlands restored in the Dickinson Bayou watershed since 2015.</p>	<p>There are no updates for this management measure at this time.</p>

**Management Measure 6: Construct Treatment Wetlands**

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>DBWP, Texas Coastal Watershed Program: Education, technical assistance, and assistance with grant applications for wetland construction Projects</p> <p>Landowners: participation</p>	<p>Landowners participation in wetland construction workshops.</p> <p>Design and installation of treatment wetlands.</p>	<p>Workshops for local government officials and environmental organization representatives to encourage the development of projects to construct treatment wetlands in their facilities and communities.</p> <p>Funding sought for the construction of treatment wetlands.</p> <p>Area of treatment wetlands installed since 2015.</p>	<p>There are no updates for this management measure at this time.</p>

**Management Measure 7: Provide Demonstrations, and Encourage Installation, of stormwater BMPs including rain gardens, bioswales, and rainwater harvesting.**

Responsible Party	Implementation Measure	Implementation Milestone	Status
Texas Coastal Watershed Program: education and assistance with grant applications for wetland construction projects Landowners: participation	Landowners participation in stormwater BMP workshops. Installation of stormwater BMPs.	Outreach campaign established to increase familiarity with stormwater BMPs. Educational materials about stormwater BMPs distributed. Stormwater BMP workshops completed. Number of stormwater BMPs installed.	There are no updates for this management measure at this time.

## Control Actions

### **Control Action 1: Implement Stricter Bacteria Limits and Enforcement Measures for WWTF Effluents.**

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>TCEQ: include lower limits in permits and inform WWTF owners/operators of more stringent requirements; develop enforcement measures for bacteria effluent violations.</p> <p>WWTF owners/operators: meet the lower limits.</p> <p>DBWP WWTF Workgroup: Inform all WWTFs of new requirements; Monitor and report on updated permits.</p>	<p>Lower bacteria limits on treated wastewater effluent.</p>	<p>TCEQ-permitted WWTFs with more stringent bacteria limits.</p>	<p>As of April 2020, 6 of the 9 WWTFs that received bacteria wasteload allocations (WLAs) as part of the Dickinson Bayou Bacteria TMDLs, have been issued bacteria permit limits equal to half of the criteria associated with the primary contact recreation use standard (i.e., 63 cfu/100 ml <i>E. coli</i> for freshwater streams and 17.5 CFU/100 mL for tidal streams)</p> <p>Two industrial WWTFs, TPDES Permit Numbers WQ0000377000, Calumet Dickinson Refining, LLC (formerly Penreco), and WQ0003416000, Waste Management of Texas, currently do not have bacteria permit limits.</p> <p>One public domestic WWTF, TPDES Number WQ001444000, Brazoria County MUD 24, is no longer active and the discharge permit for this facility expired before lower bacteria limits could be imposed (i.e., 2013).</p> <p>Note: One public domestic WWTF, TPDES Number WQ0010173001, Galveston County Water Control and Improvement District 1, has a bacteria limit in its TPDES discharge permit of 17.5 cfu/100 ml <i>E. coli</i> (possibly in error), despite discharging directly to Dickinson Bayou Tidal.</p>

**Control Action 2: Increase Compliance and Enforcement by the TCEQ.**

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>TCEQ: assess staffing needs; conduct a workload analysis to determine the number of staff needed, conduct focused sampling investigations and/or unannounced inspections at all TCEQ-permitted WWTFs in the watershed; if needed contract with local programs to perform additional inspections and plan reviews.</p> <p>Dickinson Bayou Watershed Partnership WWTF Workgroup: collection of WWTF investigation/inspection/plan review reports.</p>	<p>TCEQ performs unannounced inspections each year as funding allows.</p> <p>TCEQ conducts focused sampling and focused investigations each year as funding allows.</p> <p>TCEQ reviews plans and specifications as funding allows.</p>	<p>Workload analysis conducted.</p> <p>Focused sampling investigations of WWTFs in the watershed.</p> <p>Unannounced inspections of WWTFs in the watershed.</p> <p>Plans and specifications reviewed.</p> <p>Other investigations conducted.</p>	<p>There are no updates for this management measure at this time.</p>

**Control Action 3: Revise Penalties and Violations for SSSs and WWTFs.**

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>TCEQ: Revision of penalty structure for SSS violations.</p> <p>Dickinson Bayou Watershed Partnership WWTF Workgroup: evaluate progress.</p>	<p>Revised penalty Structure for SSS and WWTF violations</p> <p>Supplemental Environmental Project (SEP)s in the Dickinson Bayou watershed</p>	<p>Penalty structure revisions in place</p> <p>Supplemental Environmental Project (SEP) conducted in the Dickinson Bayou watershed that provided environmental benefits to local governments or organizations</p>	<p>There are no updates for this management measure at this time.</p>

**Control Action 4: Improve reporting capabilities for SSOs**

Responsible Party	Implementation Measure	Implementation Milestone	Status
<p>EPA/TCEQ: develop and deploy SSO tracking database, educate SSS owners/operators, report progress to WWTF Workgroup.</p> <p>SSS owners/operators: report SSOs.</p> <p>WWTF Workgroup: Collect and share information on the progress made each year.</p>	<p>Creation and deployment of SSO tracking database.</p> <p>Reporting of SSOs in the database.</p>	<p>Deployment of SSO tracking database.</p> <p>SSO reports available from database.</p>	<p>There are no updates for this management measure at this time.</p>