**EM-11 Reduction of Agricultural Pollution**

1. OBJECTIVE

To maintain water quality standards that adequately protect estuarine resources from agricultural nonpoint source pollutants.

1. DESCRIPTION

This action will follow already developed best management practices (BMPs) as recommended in the Louisiana Department of Environmental Quality's (LDEQ) statewide nonpoint program. These BMPs meet, enhance, or exceed state/federal guidelines and are consistent with continued agricultural production in the area. Employing these management practices will ensure that the BTES waters shall have a good ecological balance of nutrients and be free of harmful concentrations of toxic contaminants. These management practices were developed from user group and coalition input, and based on the direct involvement of such groups.

1. Background / Major Issues

Bayous and lakes throughout the Barataria Terrebonne Estuary System (BTES) are impaired because of excess nitrogen, phosphorus, pathogens and sediment from urban areas, industries, farms and ranches, and other sources. Throughout the BTES partners will work with producers and landowners to implement voluntary conservation practices that improve water quality while maintaining agricultural productivity.

In the BTES, agriculture is a major land use. Sugarcane production totals over 203,000 acres, soybeans over 80,000 acres, and pastureland over 135,000 acres (obtained from the 2015 USDA Cropland Statistics database). Water quality data from LDEQ's 2016 Integrated Report indicate that nonpoint agricultural sources in the Barataria Basin contribute to the degradation

of ten waterbody subsegments either not meeting or only partially meeting their designated use, while in the Terrebonne Basin sixteen subsegments are not fully or only partially meeting their designated use.

This action will involve implementation of conservation practices and best management practices (BMPs) in sufficient quantity in a concentrated area so that agriculture no longer contributes to the impairment of water bodies within the BTES. To achieve these goals, the conservation partnership will work with landowners and individual agricultural producers to implement conservation practices such as nutrient management, integrated pest management, land shaping, prescribed grazing, cover crops, conservation cropping systems, and filtering wetlands.

Implementation of these management practices will work to decrease contaminants including nutrients (nitrogen and phosphorus), sediments, animal waste (fecal coliform), pesticides, herbicides, fungicides, insecticides, etc. from agricultural runoff that lead to eutrophication, decreased production, and plant or animal mortality within the BTES.

Coordination with local and state agencies, conservation districts, nongovernmental organizations and others to implement this plan. Partners will play a crucial role in encouraging and supporting producer participation. Conservation investments in the BTES is good for all residents because well-managed farms limit pollution from runoff, produce food and fiber, sustain rural economies and provide food security to the nation. Communities benefit by having clean waterways, safer drinking water and healthy habitat for fish and wildlife.

1. LOCATION

The location of implementation of conservation activities will center on active agricultural lands within the impaired subsegments of the BTES.

1. LEAD AGENCY RESPONSIBLE FOR IMPLEMENTATION

**Louisiana Department of Environmental Quality (LDEQ)**

State agency in charge of water quality monitoring and obtains program funds from the EPA CWA 319 program to restore impaired watersheds within the state of Louisiana.

**Louisiana Department of Agriculture and Forestry**

State agency where the Office of Soil and Water Conservation obtains project funds from the EPA CWA 319 program and work with NRCS to implement conservation practices to restore watersheds impaired by agricultural uses.

**USDA Natural Resources Conservation Service**

Federal agency that has been the lead conservation agency in charge of implementation of conservation practices on agricultural land, and providing technical and financial assistance to private landowners/producers. The Environmental Quality Incentives Program (EQIP) funds this assistance, and in some cases, is leveraged by funds from local and state partners.

Targeted Watershed Initiatives provide a means to accelerate voluntary, private lands conservation investments to improve water quality with dedicated financial and technical assistance and to focus water quality monitoring and assessment funds where they are most needed. Water quality-related conservation practices enhance agricultural profitability through reduced input and enhanced soil health, which results in higher soil organic matter, increased infiltration and water-holding capacity and nutrient cycling.

1. TIMELINES AND/OR MILESTONES

Over the next twenty years, LDEQ will continue ambient water quality monitoring in subsegments as well as increased sampling in special initiative watersheds within the BTES. The LDAF and NRCS will continue implementation of best management practices on private agricultural land through various programs including the EPA CWA 319 program, EQIP, MRBI, GOMI, NWQI, RCPP, etc. Data from the most recent integrated report is used to determine where best management practices are needed the most in a particular watershed. The agencies work together to restore impaired watersheds. All agencies contribute to outreach activities.

In order to develop and implement solutions to the problems in the BTES, the proposed short term plans (0-1 year) consist of the formulation of common ground solutions and establishment of a data base program. Specific plans are as follows:

S 1.00 The implementation of comprehensive education and awareness programs that enhance public involvement is needed in the initial stages of the plan and will include workshops, seminars, etc. This will increase involvement plus the adherence to regulations, and in the case of agriculture will include the awareness and following of best management practices.

S 2.00 The promotion of regional pride and long-term stewardship of the basin goes hand in hand with the aforementioned education and coalition of government agencies and user groups. In the area of agriculture the involvement of the individual farmers and their families can help promote the quality of the estuary.

S 3.00 Using input from the user groups and established coalitions, strategies will be developed to ensure that the water quality standards as set forth above will be met and maintained. In the case of agriculture, the appropriate user groups will be directly involved.

S 4.00 An accessible, comprehensive data base including GIS data, with interpreted information for the public must be created. Such a data base should include all pollution source types, including information on quantification and distribution of agricultural pollutants in the ecological system and hydrologic system. Included is the formulation of indicators of estuarine ecosystem health and balance usage of estuarine resources. The definition of limiting characteristics and indicators of ecosystem well-being must take into account all sources of pollution including agriculture. The overall view of the BTES will insure a better balanced usage of the resources.

The focus of medium-term planning (1-5 years) is to provide the basis for review of the effectiveness of the planned actions. Periodic monitoring and review of the program effectiveness will be conducted, including a review of the overall program as well as individual areas, plans, and/or methods.

M 1.00 A three year monitoring phase should be initiated based on the structure of the BMPs. Changes in the BMP's and/or addition of other such measures may be required in order to meet the goal of improving water quality as determined from analysis of monitoring data.

M 2.00 The monitoring of the amount and distribution of agricultural pollution will be conducted in association with the monitoring of other sources and types of pollutants addressed in the CCMP action plans. Monitoring must include measurements of agricultural pollutants including: nutrients, pesticides (including herbicides, fungicides, insecticides, etc.), sediment loads, salts, and animal wastes.

The long term plan is to develop solutions to the agricultural pollution and sources of the BTES. In order to maintain and/or restore the estuary system biological communities the sources of agricultural pollution must be reduced to acceptable levels in order to realistically support diverse biological communities. This includes the development and maintenance of multi-level, long term planning. Such planning must be conducted using all groups, coalitions, and political jurisdictions. Specific plans include:

L 1.00 Establish close working relationships with the agricultural user groups to establish a means of determining valuation of the ecological resources.

L 2.00 In addition, coalitions with other involved state and parish agencies need to be formed to ensure a complete basis for setting resource priorities in the BTES. The appropriate agencies include the Louisiana Department of Natural Resources (LDNR), the Louisiana Department of Environmental Quality ( LDEQ), the Louisiana Department of Agriculture and Forestry (LDAF), the Louisiana Cooperative Extension Service (LCES), the U. S. Army Corps of Engineers (USACOE), the U. S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), the Natural Resources Conservation Service (NRCS), and local coastal management programs.

L 3.00 Meeting water quality standards that adequately protect estuarine resources. The water quality programs established under the CCMP should meet all state/federal guidelines. To accomplish this the agricultural sources should be reduced to levels that ensure a good ecological balance of the estuary. Such levels are dependent on the assessments of distribution and quantities of pollutants as determined during initial studies.

L 4.00 To accomplish the reduction of the agricultural pollutants the plan must promote environmentally responsible economic activities that sustain current agricultural activities and protect estuarine resources. The sustained use of agricultural methods that help maintain the viability of the BTES should be one of the main points of emphasis in the promotion of environmentally responsible activities.

L 5.00 The preservation of wetlands and barrier islands will be a related focal point of the action plan. The sediments, salts, and herbicides associated with agricultural source pollutants can directly impact wetland vegetation leading to erosion and loss of the affected wetlands. Reduction in the amounts of these substances in the BTES waters will help in preservation of the associated wetlands.

L 6.00 The action plan must be compatible with natural processes. Flooding can pose problems if fields are flooded and the resulting waters discharge sediment and/or pesticides into the watershed area. This discharge should be taken into account in the planning of future and present agricultural activities in the area.

1. POSSIBLE RANGE OF COSTS AND SOURCES OF FUNDING

The LDEQ conducts the ambient water quality monitoring program from state funds and also obtains federal funds from the EPA CWA 319 program to monitor special projects in impaired watersheds. The LDAF Office of Soil and Water Conservation implements conservation practices on agricultural land with special federal project funds from the EPA CWA 319 program in the amount of $1.9 million a year. The NRCS also implements conservation practices via field offices through technical assistance around the state.

1. PERFORMANCE MEASURES
	1. POSSIBLE DATA GATHERED

Acres of conservation practices, types of conservation practices, water quality data, watershed impairments

* 1. MONITORING

Data from LDEQ water quality monitoring is collected via grab samples which are tested by an accredited laboratory for specific parameters. LDAF and NRCS report practices implemented.

* + 1. PARTIES RESPONSIBLE
			1. LDEQ
			2. LDAF
		2. TIMETABLE FOR GATHERING DATA

LDEQ and LDAF complete annual and semi-annual reports. LDEQ updates the integrated report of impaired watersheds every two years.

* + 1. HOW DATA IS SHARED

Agency websites, group meetings, teleconferences, field days, training workshops

* + 1. POSSIBLE DATA GAPS

Critical acres within impaired watersheds needing treatment.

* + 1. IF ADDITIONAL FUNDING IS NEEDED

Yes