Title of Project: Surface Water Quality Monitoring to Support Development and Implementation of Bacteria TMDLs in the Copano Bay Watershed
[Short Title: SWQM for Copano Bay TMDL]

Project Goals/Objectives: Provide quality assured surface water quality monitoring data to support development of bacteria TMDLs for Copano Bay and Mission and Aransas Rivers in Aransas, Bee, Goliad, Karnes, Refugio, and San Patricio Counties.

Project Tasks:
1) Project Administration and Coordination
2) Routine Ambient Surface Water Quality Monitoring
3) Targeted Watershed Surface Water Quality Monitoring
4) Effluent Surface Water Quality Monitoring
5) Quality Assurance
6) Data Management and Final Report

Measures of Success: Data of known and acceptable quality are generated for surface water quality monitoring (routine ambient, targeted watershed, and effluent) of the Copano Bay (Segment 2472) watershed, including Segments 2001 and 2002 (Mission River Tidal and Non-tidal) and Segments 2003 and 2004 (Aransas River Tidal and Non-tidal) for field, conventional, flow (non-tidal river segments), and bacteria parameters.

Project Type: Statewide ( ); Watershed Implementation/Education ( ); Watershed Planning/Assessment (X); Watershed Protection ( )

Status of Waterbody:
2008 Water Quality Inventory and 303(d) List
Segment ID: Parameter: Category:
2472 bacteria (oyster waters) 5a
2001 bacteria (contact recreation) 5a
2002 --- 2
2003 bacteria (contact recreation) 5a
2004 --- 2
2004A bacteria (contact recreation) 5c

Project Location: Copano Bay (Segment 2472) Watershed (including Mission and Aransas Rivers) in Aransas, Bee, Goliad, Karnes, Refugio, and San Patricio Counties

Key Project Activities: Hire Staff (X); Monitoring (X); Regulatory Assistance ( ); Technical Assistance ( ); Education ( ); Implementation ( ); Demonstration ( ); Other ( )

NPS Management Program Elements:
- Element One (STG 1A; STG 1B; STG 1C; STG 1D; STG 1E)
- Element Two
- Element Five

Project Costs:
Federal: $214,388
Non-Federal: $218,178
TSSWCB State GR $75,253
Cooperator Match $142,925
Total: $432,566

Project Management: Nueces River Authority
Project Period: December 1, 2006 – May 31, 2011
## Part I – Applicant Information

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<tr>
<th>Applicant</th>
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<tbody>
<tr>
<td><strong>Project Lead</strong></td>
<td>Rocky Freund</td>
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<tr>
<td><strong>Title</strong></td>
<td>Deputy Executive Director</td>
</tr>
<tr>
<td><strong>Organization</strong></td>
<td>Nueces River Authority</td>
</tr>
<tr>
<td><strong>E-mail Address</strong></td>
<td><a href="mailto:rfreund@nueces-ra.org">rfreund@nueces-ra.org</a></td>
</tr>
<tr>
<td><strong>Street Address</strong></td>
<td>1201 N. Shoreline Blvd.</td>
</tr>
<tr>
<td><strong>City</strong></td>
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</tr>
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<tr>
<td><strong>Zip Code</strong></td>
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</tr>
<tr>
<td><strong>Telephone</strong></td>
<td>361-653-2110</td>
</tr>
<tr>
<td><strong>Fax</strong></td>
<td>361-653-2115</td>
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## Project Partners

<table>
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<tr>
<th>Names</th>
<th>Roles &amp; Responsibilities</th>
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<tr>
<td>Nueces River Authority (NRA)</td>
<td>Perform and supervise all work described in tasks. Provide non-federal match.</td>
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<tr>
<td>Texas Commission on Environmental Quality (TCEQ)</td>
<td>Provide non-federal match through Clean Rivers Program and Surface Water Quality Monitoring Program funds. Provide coordination of TMDL activities with TSSWCB.</td>
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<tr>
<td>Texas State Soil and Water Conservation Board (TSSWCB)</td>
<td>Provide state oversight and management of all project activities. Ensure coordination of activities with TCEQ. Provide federal and state funding.</td>
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<td>University of Texas at Austin – Center for Research in Water Resources (CRWR)</td>
<td>TCEQ contractor conducting watershed modeling for TMDL project; will utilize data collected through this project.</td>
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<td>Texas A&amp;M University – Corpus Christi (TAMU-CC)</td>
<td>Conduct bacteria sample laboratory analysis.</td>
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## Part II – Project Information

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<td><strong>Groundwater</strong></td>
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Does the project implement recommendations made in a completed Watershed Protection Plan or approved TMDL Report or Implementation Plan? **Yes**, **No**, **X**

If yes, identify the document. **Year Developed**

### Watershed Information

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<th>Watershed Name(s)</th>
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<td>2003, 2004</td>
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### Project Narrative

#### Problem/Need Statement

Copano Bay is located in the San Antonio–Nueces Coastal Basin. The bay covers parts of Aransas and Refugio counties, while the watershed also encompasses Bee, Goliad, Karnes and San Patricio counties. Mission Bay and Port Bay are sub-bays of Copano Bay and are included in Segment 2472. Segment 2472 is the receiving body of the Mission and Aransas Rivers. Mission River Above Tidal (Segment 2002) begins at the confluence of Blanco and Medio Creeks in Refugio County and is 9 miles in length. Mission River Tidal (Segment 2001) begins at a point 4.6 miles downstream of US 77 in Refugio County, is 19 miles in length, and flows into Mission Bay. Aransas River Above Tidal (Segment 2004) begins at the confluence of Poesta and Aransas Creeks in Bee County and is 35 miles in length. Aransas River Tidal (Segment 2003) begins at a point one mile upstream of US 77 in Refugio/San Patricio County, is 6 miles in length, and flows into Copano Bay. The Aransas River forms a portion of the boundary between Refugio and San Patricio Counties, from the Bee County line to the bay.

According to the 2008 Texas Water Quality Inventory and 303(d) List, Copano Bay (Segment 2472) is impaired for bacteria in oyster waters (category 5c) in the area along the southern shore including Port Bay and the area near Bayside.

Mission River Tidal (Segment 2001), is impaired for bacteria for contact recreation. Aransas River Tidal (Segment 2003) is impaired for bacteria for contact recreation and has a concern for orthophosphorus. Aransas River Above Tidal (Segment 2004) has concerns for low dissolved oxygen, nitrate, orthophosphorus, and total phosphorus. Aransas Creek (Segment 2004A) is impaired for bacteria for contact recreation and has a concern for low dissolved oxygen.

A Total Maximum Daily Load (TMDL) study to address the bacteria in oyster waters in Copano Bay was initiated in 2003 by TCEQ. There are two major components to the study. The first is the development of a Bacteria Loadings Model for the Mission and Aransas Rivers sub-basins of the San Antonio–Nueces Coastal Basin. Nonpoint source contributions were based primarily on land use/land cover information and estimated livestock densities of each county. Point source contributions include wastewater treatment facilities (WWTFs), septic systems, and direct deposition by water birds.

The second component of the study is Bacterial Source Tracking for the area around and in Copano Bay. This is a technique to determine sources of fecal contamination in a waterbody. TAMU-CC conducted antibiotic resistance analysis and found contributions from humans/sewage and livestock under high river flow and rainfall events, and ducks. Other wildlife and gulls contributed relatively little contamination.

The Texas Department of State Health Services (DSHS) uses fecal coliform as the indicator bacteria to access bacteria contamination in oyster waters. TCEQ uses *E. coli* and enterococcus as the indicator bacteria to access bacteria contamination in fresh and marine waters, respectively, for contact recreation use. This SWQM for Copano Bay TMDL project will collect fecal coliform, *E. coli*, and enterococcus samples at all locations.

TCEQ has hosted several public meetings regarding the TMDL project for Copano Bay. Stakeholders at those meetings have expressed concern regarding the limited dataset, both in number of samples used in the analysis and in the geographic extent of samples. SWQM data collected through this project may be utilized to better understand fate and transport mechanisms of bacteria in the Copano Bay watershed. SWQM data collected through this project may be utilized to enhance the TMDL model, as well as, to clarify the 5a impairments in the tidal portions of Mission and Aransas Rivers. Additionally, SWQM data collected through this project may be utilized to monitor water quality improvement and implementation progress of any TMDLs adopted for the Copano Bay watershed.
Project Narrative

General Project Description

Currently, routine ambient water quality data is collected quarterly at 4 river stations and 3 bay stations by NRA (12943, 12944, 12947, 12952, 12945, 13404, and 13405); and at two bay stations by TCEQ (14783 and 17724).

This project will generate data of known and acceptable quality for surface water quality monitoring of river stations on Segments 2472 (Copano Bay), 2001/2002 (Mission River), and 2003/2004 (Aransas River) for field, conventional (TSS and turbidity), flow (non-tidal river segments), and bacteria parameters to support the TMDL for bacteria in oyster waters in Copano Bay in Aransas and Refugio Counties. This SWQM for Copano Bay TMDL project will provide for surface water quality monitoring for 44 months. Three types of surface water quality monitoring will be conducted: routine ambient, targeted watershed, and effluent.

This SWQM for Copano Bay TMDL project will provide for up to 33 surface water quality monitoring events through May 31, 2011 at up to 26 sites. From October 2007 through October 2009, the project collected data during 6 dry weather events and 4 wet weather events. Beginning November 2009, monthly sampling will be conducted. Specific sampling sites will be re-evaluated each year. WWTFs will be sampled during each of the sampling events if feasible. There are 16 permitted WWTFs in the Copano Bay watershed, 12 that discharge into the watershed. Coordination with TPDES permittees and TCEQ will be required. TCEQ will collect fecal coliform samples for NRA during their routine quarterly sampling, and NRA will add *E. coli*, enterococcus, and fecal coliform to its samples (when not already included) during routine quarterly sampling.

NRA will conduct most of the work performed under this project including technical and financial supervision, preparation of status reports, surface water quality monitoring sample collection, and data management. Bacteria analysis will be conducted by the TAMU-CC Microbiology Laboratory and conventional data analysis will be performed by the Lower Colorado River Authority (LCRA) Environmental Services Laboratory under NRA’s current agreements for Clean Rivers Program (CRP) data analysis. NRA will participate in the Copano Bay TMDL stakeholder meetings in order to efficiently and effectively achieve project goals and to summarize activities and achievements made throughout the course of this project.

The sampling period extends for 44 months through May 2011. The specific sites are identified in the QAPP but at least 37 potential sites have been identified, beyond the 9 sites currently being sampled quarterly. Most of the sites are located on unclassified tributaries of the Mission and Aransas Rivers.

NRA will develop and implement a QAPP to ensure water quality data of known and acceptable quality are generated through this project. See table on page 5 and map on page 6 for all monitoring sites. Existing NRA and TCEQ sites and WWTF discharge locations are included on the map. NRA will manage monitoring data for use in support of the TMDL for bacteria in oyster waters in Copano Bay. NRA will submit monitoring data to TSSWCB for inclusion in the TCEQ SWQM database (SWQMIS).

NRA will post monitoring data to the NRA website in a timely manner. NRA will summarize the results and activities of this project through inclusion in NRA’s Clean Rivers Program Basin Highlights Report and/or Basin Summary Report. Additionally, the results and activities of this project will be summarized in the TMDL for bacteria in oyster waters in Copano Bay.

Federal funds will provide for water quality sample collection and analysis of water quality samples. TSSWCB will provide funds sourced from state general revenue to support additional analysis of samples. NRA and TCEQ CRP (through NRA) will each provide portions of the non-federal (cooperator) match.
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<th>Long_dd</th>
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Water Quality Impairment

Describe all known causes (pollutants of concern) of water quality impairments from any of the following sources: 2008 Water Quality Inventory and 303(d) List, 2008 Summary of Waterbodies with Water Quality Concerns (Secondary Concerns List) or Other Documented Sources (ex. Clean Rivers Program Basin Summary or Basin Highlights Reports).

- **2002 TWQI** – Segment 2472 – oyster waters use impairment, nutrient enrichment concern (total phosphorus), and aquatic life use concern
- **2004 TWQI** – Segment 2472 – oyster waters use impairment, nutrient enrichment concern (total phosphorus), and aquatic life use concern
- **2006 TWQI** – Segment 2472 – oyster waters use impairment
- **2008 TWQI** – Segment 2472 – oyster waters use impairment

- **2002 TWQI** – Segment 2001 – contact recreation use concern
- **2004 TWQI** – Segment 2001 – contact recreation use impairment
- **2006 TWQI** – Segment 2001 – contact recreation use impairment
- **2008 TWQI** – Segment 2001 – contact recreation use impairment

- **2002 TWQI** – Segment 2002 – contact recreation use concern and aquatic life use concern
- **2004 TWQI** – Segment 2002 – aquatic life use concern

- **2002 TWQI** – Segment 2003 – contact recreation use concern and nutrient enrichment concern (orthophosphorus)
- **2004 TWQI** – Segment 2003 – contact recreation use impairment and nutrient enrichment concern (orthophosphorus)
- **2006 TWQI** – Segment 2003 – contact recreation use impairment and nutrient enrichment concern (orthophosphorus and nitrate)
- **2008 TWQI** – Segment 2003 – contact recreation use impairment and nutrient enrichment concern (orthophosphorus)

- **2002 TWQI** – Segment 2004 – aquatic life use concern
- **2004 TWQI** – Segment 2004 – aquatic life use concern
- **2006 TWQI** – Segment 2004 – aquatic life use concern and nutrient enrichment concern (orthophosphorus, total phosphorus, and nitrate)
- **2008 TWQI** – Segment 2004 – aquatic life use concern and nutrient enrichment concern (orthophosphorus, total phosphorus, and nitrate)

**2006 TWQI** – Segment 2004A – contact recreation use impairment and aquatic life use concern

**2008 TWQI** – Segment 2004A – contact recreation use impairment and aquatic life use concern

Project Goals

Data of known and acceptable quality are generated for surface water quality monitoring (routine ambient, targeted watershed, and effluent) of the Copano Bay (Segment 2472) watershed, including the two rivers that flow into it, Segments 2001 and 2002 (Mission River Tidal and Non-tidal) and Segments 2003 and 2004 (Aransas River Tidal and Non-tidal) for field, conventional (TSS and turbidity), flow (non-tidal river segments), and bacteria parameters.
Tasks, Objectives and Schedules

Task 1: Project Administration and Coordination
Costs: Federal: $10,000  Non-Federal: $72,000  Total: $82,000
Objective: To effectively coordinate and monitor all work performed under this project including technical and financial supervision and preparation of status reports.

Subtask 1.1: NRA will prepare electronic quarterly progress reports (QPRs) for submission to TSSWCB. Progress reports shall document all activities performed within a quarter and shall be submitted by the 15th of January, April, July, and October. All progress reports will also be provided to TCEQ.
Start Date: December 1, 2006  Completion Date: May 31, 2011

Subtask 1.2: NRA will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly.
Start Date: December 1, 2006  Completion Date: May 31, 2011

Subtask 1.3: NRA will participate in the Copano Bay TMDL stakeholder meetings in order to efficiently and effectively achieve project goals and to summarize activities and achievements made throughout the course of this project.
Start Date: December 1, 2006  Completion Date: May 31, 2011

Deliverables
- Quarterly Progress Reports in electronic format.
- Reimbursement Forms in either electronic or hard copy format.

Tasks, Objectives and Schedules

Task 2: Routine Ambient Surface Water Quality Monitoring
Costs: Federal: $6,689  Non-Federal: $49,725  Total: $56,414
Objective: To provide water quality data to support the on-going TMDL for bacteria in oyster ways in Copano Bay by enhancing current routine ambient monitoring regimes.

Subtask 2.1: Currently, routine ambient monitoring is conducted quarterly at 7 stations by NRA (12943, 12944, 12945, 12947, 12952, 13404, and 13405) and quarterly at 2 stations by TCEQ (14783 and 17724). NRA and TCEQ will add E. coli, enterococcus, and fecal coliform samples to their routine sampling (when not already included) in support of the project.
TAMU-CC Environmental Microbiology Laboratory will conduct the bacteria analysis.
Start Date: September 1, 2007  Completion Date: May 31, 2011

Deliverables
- Water quality data from routine ambient monitoring as reported through Tasks 1 and 6.
### Tasks, Objectives and Schedules

#### Task 3: Targeted Watershed Surface Water Quality Monitoring

<table>
<thead>
<tr>
<th>Costs:</th>
<th>Federal:</th>
<th>$143,000</th>
<th>Non-Federal:</th>
<th>$77,253</th>
<th>Total:</th>
<th>$220,253</th>
</tr>
</thead>
</table>

**Objective:**
To provide water quality data to support the on-going TMDL for bacteria in oyster ways in Copano Bay by enhancing current routine ambient monitoring regimes through targeted watershed monitoring.

**Subtask 3.1:**
Prior to any wet weather sampling events, NRA will conduct field surveys to document stream bed profiles at sites without USGS flow gages. This will allow for flow estimates to be used during times when high flow prohibits actual measurements.

- **Start Date:** September 1, 2007
- **Completion Date:** May 31, 2011

**Subtask 3.2:**
NRA is expecting to conduct targeted sampling at up to 26 sites to support the modeling effort. The specific sites have yet to be determined. These sites may vary for each year of the project and will most likely be located on unclassified tributaries of the Mission and Aransas Rivers. See table on page 5 and map on page 6 for potential sites. The QAPP, as detailed in Task 5, precisely identify sites.

  Sampling period extends through 44 months. Total number of sample events scheduled for collection through this subtask is 33 events. It is anticipated that some of the sites will be dry during some of the events.

  LCRA’s Environmental Services Laboratory will conduct sample analysis for conventional parameters and the TAMU-CC Microbiology Laboratory will conduct bacteria analysis.

  Field parameters are pH, temperature, specific conductance (conductivity), dissolved oxygen, physical water qualities, current weather conditions, and flow severity. Conventional parameters are TSS and turbidity. Flow parameters (non-tidal segments) are flow collected by gage, electric, mechanical, Doppler, or flow estimates. Bacteria parameters are *E. coli*, enterococcus, and fecal coliform.

- **Start Date:** September 1, 2007
- **Completion Date:** May 31, 2011

**Deliverables**
- Water quality data from targeted watershed monitoring as reported through Tasks 1 and 6.

---

#### Task 4: Effluent Surface Water Quality Monitoring

|-------------------|----------|---------|--------------|---|--------|---------|

**Objective:**
To provide water quality data to support the on-going TMDL for bacteria in oyster waters in Copano Bay by enhancing current routine ambient monitoring regimes through effluent monitoring.

**Subtask 4.1:**
WWTF end-of-pipe samples will be collected by TCEQ personnel on the days of the targeted monitoring events, if possible. There are 16 permitted WWTFs in the Copano Bay watershed, 12 of which discharge into the watershed. Coordination with TCEQ will be required.

  LCRA’s Environmental Services Laboratory will conduct sample analysis for conventional parameters and the TAMU-CC Microbiology Laboratory will conduct bacteria analysis.

  Conventional parameters are TSS and turbidity. Bacteria parameters are *E. coli*, enterococcus, and fecal coliform.

- **Start Date:** September 1, 2007
- **Completion Date:** May 31, 2011

**Deliverables**
- Water quality data from effluent monitoring as reported through Tasks 1 and 6.
### Tasks, Objectives and Schedules

<table>
<thead>
<tr>
<th>Task 5: Quality Assurance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong> To develop and implement DQOs and QA/QC activities to ensure water quality data of known and acceptable quality are generated through this project.</td>
</tr>
<tr>
<td><strong>Subtask 5.1:</strong> NRA will develop a QAPP for activities in Tasks 2-4 consistent with <em>EPA Requirements for Quality Assurance Project Plans (QA/R-5)</em> and the <em>TSSWCB Environmental Quality Management Plan</em>.</td>
</tr>
<tr>
<td><strong>Consistency with Title 30, Chapter 25 of the Texas Administrative Code, <em>Environmental Testing Laboratory Accreditation and Certification</em>, which describes Texas’ approach to implementing the National Environmental Laboratory Accreditation Conference (NELAC) standards, shall be required.</strong></td>
</tr>
<tr>
<td><strong>Subtask 5.2:</strong> NRA will implement approved QAPP and submit revisions and amendments to the QAPP as needed.</td>
</tr>
<tr>
<td><strong>Deliverables</strong></td>
</tr>
<tr>
<td>• QAPP for Tasks 2-4 approved by TSSWCB and USEPA in both electronic and hard copy formats.</td>
</tr>
<tr>
<td>• Data of known and acceptable quality as reported through Tasks 1 and 6.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task 6: Data Management and Final Report</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective:</strong> To manage and transfer monitoring data for use in the TMDL for bacteria in oyster waters in Copano Bay and for inclusion in the TCEQ SWQMIS and to develop a final report summarizing the results and activities of the project.</td>
</tr>
<tr>
<td><strong>Subtask 6.1:</strong> NRA will submit Station Location Requests as needed to obtain TCEQ stations numbers for new monitoring sites from activities in Tasks 3-4.</td>
</tr>
<tr>
<td><strong>Subtask 6.2:</strong> NRA will submit monitoring data from activities in Tasks 2-4 to TSSWCB for inclusion in the TCEQ SWQMIS. Data will be transferred in the correct format using the TCEQ file structure, along with a completed Data Summary. Data Correction Request Forms will be submitted to TSSWCB whenever errors are discovered in data already reported.</td>
</tr>
<tr>
<td><strong>Subtask 6.3</strong> NRA will post monitoring data from activities in Tasks 2-4 to the NRA website in a timely manner.</td>
</tr>
<tr>
<td><strong>Subtask 6.4:</strong> No independent final report will be prepared for this project. Rather, NRA will summarize the results and activities of this project through inclusion in NRA’s Clean Rivers Program Basin Highlights Report and/or Basin Summary Report. Additionally, the results and activities of this project may be summarized in the TMDL for bacteria in oyster waters in Copano Bay.</td>
</tr>
</tbody>
</table>

# Costs

<table>
<thead>
<tr>
<th>Task 5</th>
<th>Quality Assurance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal:</strong> $0</td>
<td><strong>Non-Federal:</strong> $4,800</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Task 6</th>
<th>Data Management and Final Report</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal:</strong> $10,000</td>
<td><strong>Non-Federal:</strong> $14,400</td>
</tr>
<tr>
<td>Deliverables</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>• Station Location Request Forms (as needed) in electronic format.</td>
<td></td>
</tr>
<tr>
<td>• Monitoring data files and Data Summary in electronic format.</td>
<td></td>
</tr>
<tr>
<td>• Data Correction Request Forms (as needed) in electronic format.</td>
<td></td>
</tr>
<tr>
<td>• Monitoring data updates posted to the NRA website.</td>
<td></td>
</tr>
<tr>
<td>• Final report (NRA CRP BHR and/or BSR) at culmination of project in both electronic and hard copy formats.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Measures of Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Data of known and acceptable quality are generated for surface water quality monitoring (routine ambient, targeted watershed, and effluent) of Segment 2472 (Copano Bay) and the two rivers that flow into it, Segments 2001 and 2002 (Mission River Tidal and Non-tidal) and Segments 2003 and 2004 (Aransas River Tidal and Non-tidal) and for field, conventional (TSS and turbidity), flow (non-tidal river segments), bacteria and effluent parameters.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2005 Texas Nonpoint Source Management Program Document Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goals &amp;/or Milestone(s)</strong></td>
</tr>
<tr>
<td>NPS Management Program - Element One – Explicit short- and long-term goals, objectives and strategies that protect surface and groundwater.</td>
</tr>
<tr>
<td><strong>Short-Term Goal One – Data Collection and Assessment – Objective A</strong> - Identify surface waterbodies…from the Texas Water Quality Inventory and 303(d) List…that need additional information to characterize non-attainment of designated uses and quality standards.</td>
</tr>
<tr>
<td><strong>Short-Term Goal One – Data Collection and Assessment – Objective B</strong> - Ensure that monitoring procedures meet quality assurance requirements and are in compliance with EPA-approved TCEQ and/or TSSWCB Quality Management Plans.</td>
</tr>
<tr>
<td><strong>Short-Term Goal One – Data Collection and Assessment – Objective C</strong> - Conduct special studies to determine sources of NPS pollution and gain information to target…BMP implementation.</td>
</tr>
<tr>
<td><strong>Short-Term Goal One – Data Collection and Assessment – Objective D</strong> – Develop and adopt, at the state level, TMDLs, Implementation Plans, and Watershed Protection Plans to maintain and restore water quality in waterbodies identified as impacted by NPS pollution.</td>
</tr>
<tr>
<td><strong>Short-Term Goal One – Data Collection and Assessment – Objective E</strong> – Conduct monitoring to determine effectiveness of TMDL Implementation Plans, Watershed Protection Plans, and BMP implementation as appropriate.</td>
</tr>
<tr>
<td>NPS Management Program - Element Two – Working partnerships and linkages to appropriate state, interstate, tribal, regional, and local entities, private sector groups, and Federal agencies.</td>
</tr>
<tr>
<td>NPS Management Program - Element Five – The state program identifies waters and their watersheds impaired by nonpoint source pollution and identifies important unimpaired waters that are threatened or otherwise at risk. Further, the state establishes a process to progressively address these identified waters by conducting more detailed watershed assessments and developing watershed implementation plans, and then by implementing the plans.</td>
</tr>
</tbody>
</table>
### Part III – Financial Information

#### Budget Summary

<table>
<thead>
<tr>
<th>Category</th>
<th>Federal 319(h)</th>
<th>TSSWCB State GR</th>
<th>Cooperator Match</th>
<th>Total Project Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$ 56,964</td>
<td>$ -</td>
<td>$ 72,181</td>
<td>$ 129,145</td>
</tr>
<tr>
<td>Fringe Benefits</td>
<td>$ 14,221</td>
<td>$ -</td>
<td>$ 16,601</td>
<td>$ 30,822</td>
</tr>
<tr>
<td>Travel</td>
<td>$ 14,254</td>
<td>$ -</td>
<td>$ -</td>
<td>$ 14,254</td>
</tr>
<tr>
<td>Supplies</td>
<td>$ 1,355</td>
<td>$ -</td>
<td>$ 2,000</td>
<td>$ 3,355</td>
</tr>
<tr>
<td>Contractual</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Construction</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Other (Analysis)</td>
<td>$ 122,286</td>
<td>$ 75,253</td>
<td>$ 44,925</td>
<td>$ 242,464</td>
</tr>
<tr>
<td><strong>Total Direct Costs</strong></td>
<td><strong>$ 209,080</strong></td>
<td><strong>$ 75,253</strong></td>
<td><strong>$ 135,707</strong></td>
<td><strong>$ 420,040</strong></td>
</tr>
<tr>
<td>Indirect Costs (≤ 15%)</td>
<td>$ 5,308</td>
<td>$ -</td>
<td>$ 7,218</td>
<td>$ 12,526</td>
</tr>
<tr>
<td><strong>Total Project Costs</strong></td>
<td><strong>$ 214,388</strong></td>
<td><strong>$ 75,253</strong></td>
<td><strong>$ 142,925</strong></td>
<td><strong>$ 432,566</strong></td>
</tr>
</tbody>
</table>

#### Budget Justification (Federal)

<table>
<thead>
<tr>
<th>Category</th>
<th>Total Amount</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$ 56,964</td>
<td>Will cover salary costs of all NRA and TAMU-CC lab personnel during sampling events. Will also cover portion of salary for contract administration, data analysis, and data management.</td>
</tr>
<tr>
<td>Fringe Benefits</td>
<td>$ 14,221</td>
<td>Will cover costs of Social Security, Medicare, Worker’s Compensation, Retirement Employer Match, and Employee Health Insurance benefits for NRA personnel based on percentage of time charged to project.</td>
</tr>
<tr>
<td>Travel</td>
<td>$ 14,254</td>
<td>Will cover cost of all travel expenses for project including rental cars, fuel for rental cars, personal mileage, hotels, and meals.</td>
</tr>
<tr>
<td>Equipment</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Supplies</td>
<td>$ 1,355</td>
<td>Will partially cover cost of sampling supplies, e.g. DO membranes, calibrating solutions, etc.</td>
</tr>
<tr>
<td>Contractual</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Other (Analysis)</td>
<td>$ 122,286</td>
<td>Will partially cover cost of lab analysis performed by LCRA and TAMU-CC.</td>
</tr>
<tr>
<td>Indirect</td>
<td>$ 5,308</td>
<td>10% of NRA personnel salaries.</td>
</tr>
</tbody>
</table>
## Budget Justification (State GR)

<table>
<thead>
<tr>
<th>Category</th>
<th>Total Amount</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Fringe Benefits</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Travel</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Supplies</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Contractual</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Other (Analysis)</td>
<td>$ 75,253</td>
<td>Will partially cover cost of lab analysis performed by LCRA and TAMU-CC.</td>
</tr>
<tr>
<td>Indirect</td>
<td>$ -</td>
<td></td>
</tr>
</tbody>
</table>

**SOURCE**

TSSWCB will provide $75,253 in non-federal funds sourced from state appropriations (FY2009 General Revenue) through a TMDL Program Grant to NRA. Funds must be expended between October 1, 2008 and September 30, 2010.

## Budget Justification (Cooperator Match)

<table>
<thead>
<tr>
<th>Category</th>
<th>Total Amount</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$ 72,181</td>
<td>Will cover portion of salary for contract administration, data analysis, and data management.</td>
</tr>
<tr>
<td>Fringe Benefits</td>
<td>$ 16,601</td>
<td>Will cover costs of Social Security, Medicare, Worker’s Compensation, Retirement Employer Match, and Employee Health Insurance benefits for NRA personnel based on percentage of time contributed to project.</td>
</tr>
<tr>
<td>Travel</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Supplies</td>
<td>$ 2,000</td>
<td>Will partially cover cost of sampling supplies, e.g. DO membranes, calibrating solutions, etc.</td>
</tr>
<tr>
<td>Contractual</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>Other (Analysis)</td>
<td>$ 44,925</td>
<td>Will partially cover cost of lab analysis performed by LCRA and TAMU-CC.</td>
</tr>
<tr>
<td>Indirect</td>
<td>$ 7,218</td>
<td>10% of NRA personnel salaries.</td>
</tr>
</tbody>
</table>