



# Peach Creek Segment 1803C

**Total Maximum Daily Load Program**  
Texas Commission on Environmental Quality

October 8, 2007



# Outstanding Issues

---



- ▲ Bacteria Task Force
- ▲ Water Quality Standards
- ▲ OSSFs (On-Site Sewage Facilities)
- ▲ Wildlife

# Recommendations from the Joint Task Force on Bacteria TMDLs

---



## Recreational TMDL Issues

- ▲ Large number of recreational use impairments
  - ▲ 2004 303(d) List – 183 Impairments
  - ▲ Draft 2006 303(d) – 294 Impairments
- ▲ Many different tools being implemented to develop bacteria TMDLs
- ▲ Stakeholder concern that approaches should use the best methods and data available

# Bacteria TMDL Task Force

---



▲ **Joint effort of TSSWCB and TCEQ**

▲ **Initial meeting September 26, 2006**

▲ **Final document June 4, 2007**

▲ **Task force members**

**Dr. Allan Jones (Chair)**

**Dr. George DiGiovanni**

**Dr. Raghavan Srinivasan**

**Dr. Larry Hauck**

**Dr. Hannadi Rafai**

**Dr. Joanna Mott**

**Dr. George Ward**

**\*50 additional expert advisors and agency personnel**

# Bacteria TMDL Task Force

---



- ▲ **Examining approaches that other states use to develop and implement bacteria TMDLs**
- ▲ **Recommending cost-effective and time-efficient methods for developing TMDLs**
- ▲ **Recommending effective approaches for developing implementation plans**
- ▲ **Evaluating the variety of models and bacteria-source-tracking methods available for developing TMDLs and implementation plans, and recommending under what conditions certain methods are more appropriate**
- ▲ **Developing a roadmap for further scientific research needed to reduce uncertainty about how bacteria behave under different water conditions in Texas**

# Bacteria TMDL Task Force - Report

---



## ▲ Bacteria Fate and Transport Models

Load duration curves (LDC)      Mass balance approaches

Spatially explicit methods      Mechanistic approaches

## ▲ Bacteria Source Tracking (BST)

Method descriptions      Regulatory expectations and capabilities

Method comparisons      Future direction

## ▲ Research and Development Needs

Characterization of sources

Characterization of kinetic rates and transport mechanisms

Enhancements to fate and transport models

Bacteria source tracking

Control measure effectiveness

Quantification of uncertainty and communication of risk

# Recommended Approach – Three Tiers

---



## ▲ Tier 1 – One year

May require the following activities

**Initiate stakeholder involvement**

**Develop GIS inventory for watershed**

**Calculate load duration curves (LDC)**

**Analyze data**

# Recommended Approach – Three Tiers

---



## ▲ Tier 2 – One-to-two years

**Most bacteria TMDLs – May be adequate for I-Plans**

**Implement targeted monitoring**

**Library-independent BST and some library dependant**

**Develop simple LDC, GIS and/or Mass balance models**

**Analyze data**

# Recommended Approach – Three Tiers

---



## ▲ Tier 3 – Two-to-three years

**Normally for I-Plan development – Some complex TMDLs**

**Assure extensive stakeholder involvement**

**Perform extensive library-dependent BST**

**Complete mechanistic modeling**

**Analyze data**

# Bacteria TMDL Task Force

---



▲ **Joint meeting and work session – June 29, 2007**

▲ **Current Actions**

**Adoption of task force recommendations**

**Support for the development of bacteria TMDL guidance**

**Formation of statewide bacteria workgroup**

**Support for ongoing water quality standards revision process**

**Resume TMDL efforts in areas where activities were suspended pending the outcome of the Task Force**

# Bacteria TMDL Task Force



## Website

<http://twri.tamu.edu/bacteriatmdl/>

The screenshot shows a web browser window titled "Bacteria TMDL - Texas Water Resources Institute - Microsoft Internet Explorer provided by TCEQ". The address bar shows the URL <http://twri.tamu.edu/bacteriatmdl/>. The website header features the TWRI logo and the text "TEXAS WATER RESOURCES INSTITUTE". Below the header, there is a search bar and a navigation menu. The main content area is titled "Bacteria TMDL" and contains a list of links and drafts. The left sidebar contains sections for "ABOUT US", "OUTCOMES", "FUNDING PROGRAMS", "RESOURCES", and "WEBSITE".

**SEARCH**

Search

**ABOUT US**

- Overview
- Current Projects
- Faculty & Staff
- Contact Us

**OUTCOMES**

- Reports
- Newsletters
- News Articles
- Subscribe

**FUNDING PROGRAMS**

- Mills Scholarships
- Soil & Water Conservation Grants
- USGS Research Grants
- Water Resources Research

**RESOURCES**

- Find a Water Resource Specialist
- Affiliates & Other Water-related Sites
- One-on-One with Water Agencies

**WEBSITE**

- Accessibility

**Bacteria TMDL**

- Charge to Task Force
  - Task Force Members/Expert Advisors
    - Members
    - Expert Advisors
    - Agency personnel
  - Proposed Schedule
- Drafts and Comments
  - Draft 4 (6/4/2007)
    - Appendix 5: Comments from Expert Advisory Group
  - Draft 3 (1/24/2007)
    - Victoria County/Refugio GCD Comments
  - Draft 2 (12/4/2006)
    - TDA Comments
    - Harris County Comments
    - NWF Comments
    - TPWD Comments
    - TCEQ Comments
    - TxDOT Comments
    - TSSWCB Comments
    - EPA Comments
    - TAMU Biological and Agricultural Engineering Dept. Comments
    - USGS Comments
  - Draft 1.5 Bacteria TMDL Report (11/22/2006)
  - Draft 1 (10/30/06)
    - Baylor Waco Comments
    - TAES-El Paso Comments
    - Harris County Comments
    - I CRA Comments

# Water Quality Standards

---



- ▶ The revision process (Triennial Review Process) for the evaluation of contact recreation uses is currently underway
  - ▶ New use sub-categories with associated criteria
  - ▶ Conditions to support sub-categories
  - ▶ Use attainability analysis feasibility
- ▶ Revised standards are planned for the end of 2008. Development of implementation could further delay any direct application.
- ▶ Revision process does not guarantee that new uses will be incorporated

# TMDL

---



- ▶ TMDL = Total Maximum Daily Load allowable to meet water quality standards
  
- ▶  $TMDL = WLA + LA + MOS$
- ▶ WLA = Point Sources
- ▶ LA = Nonpoint Sources
- ▶ MOS = Margin of Safety
  
- ▶ The TMDL must meet water quality standards

# OSSFs

---



- ▶ The model identified failing OSSFs as a potential source of bacteria
- ▶ Failing OSSFs will have to comply with a 100% reduction in existing load.
- ▶ How?
- ▶ By bringing failing systems within the 300 ft riparian corridor of Peach Creek into compliance with design and disposal requirements.

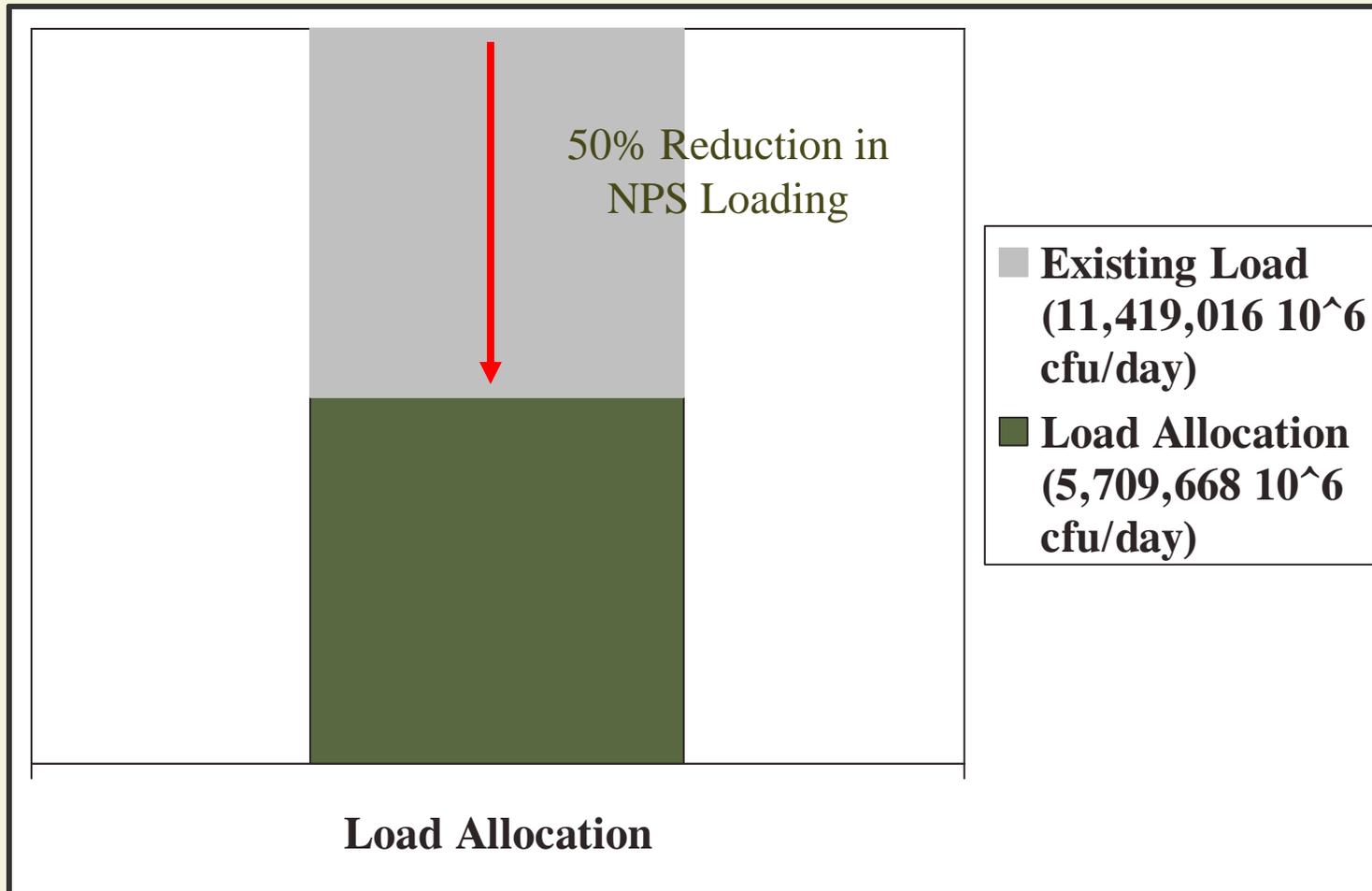
# Wildlife

---

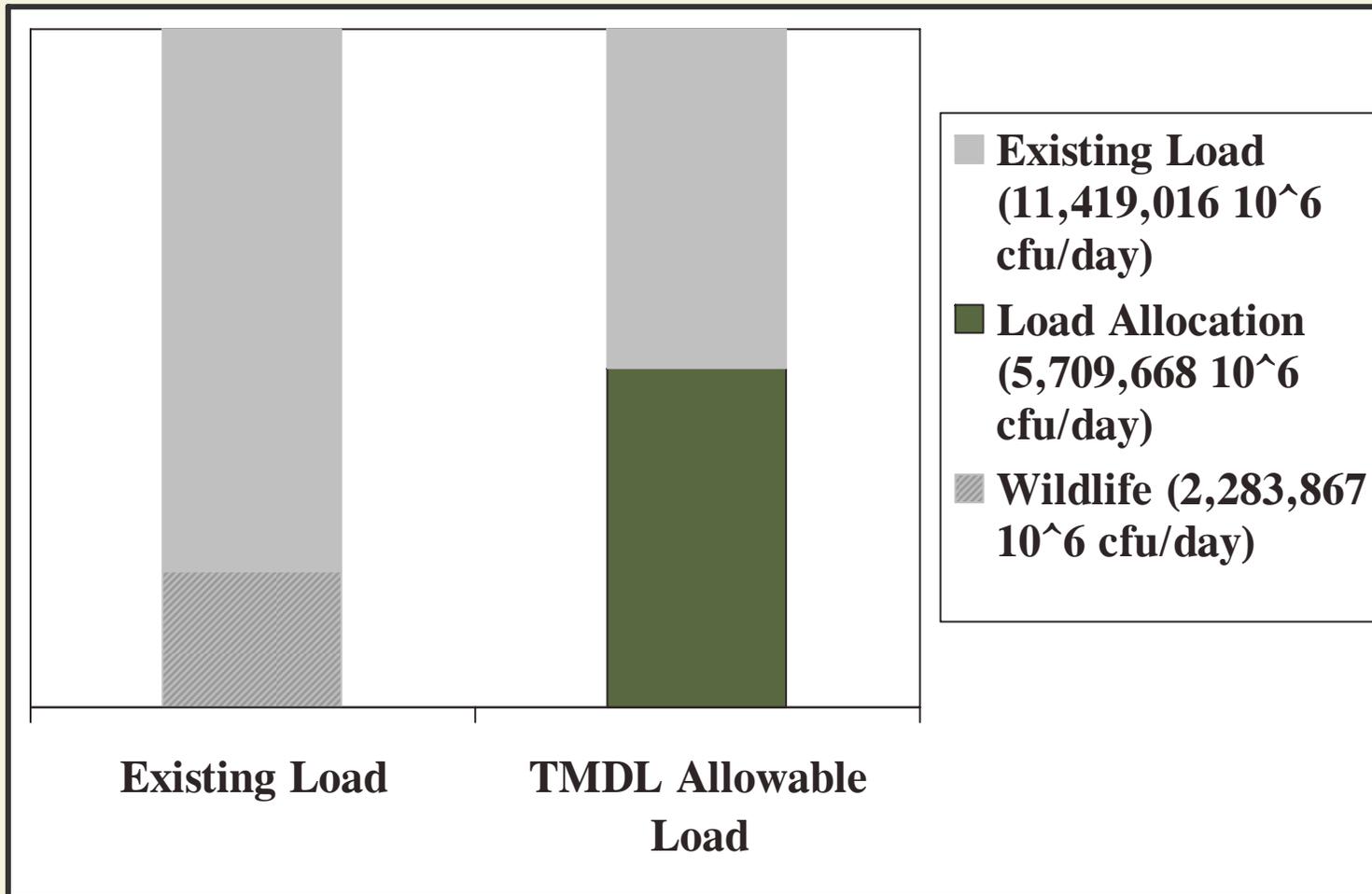


- ▶ How are contributions from wildlife sources going to be handled in the TMDL?
- ▶ Should wildlife sources be controlled to reduce the overall nonpoint source load?
- ▶ Wildlife deposition represents a background condition. Can it be removed from the Load Allocation?

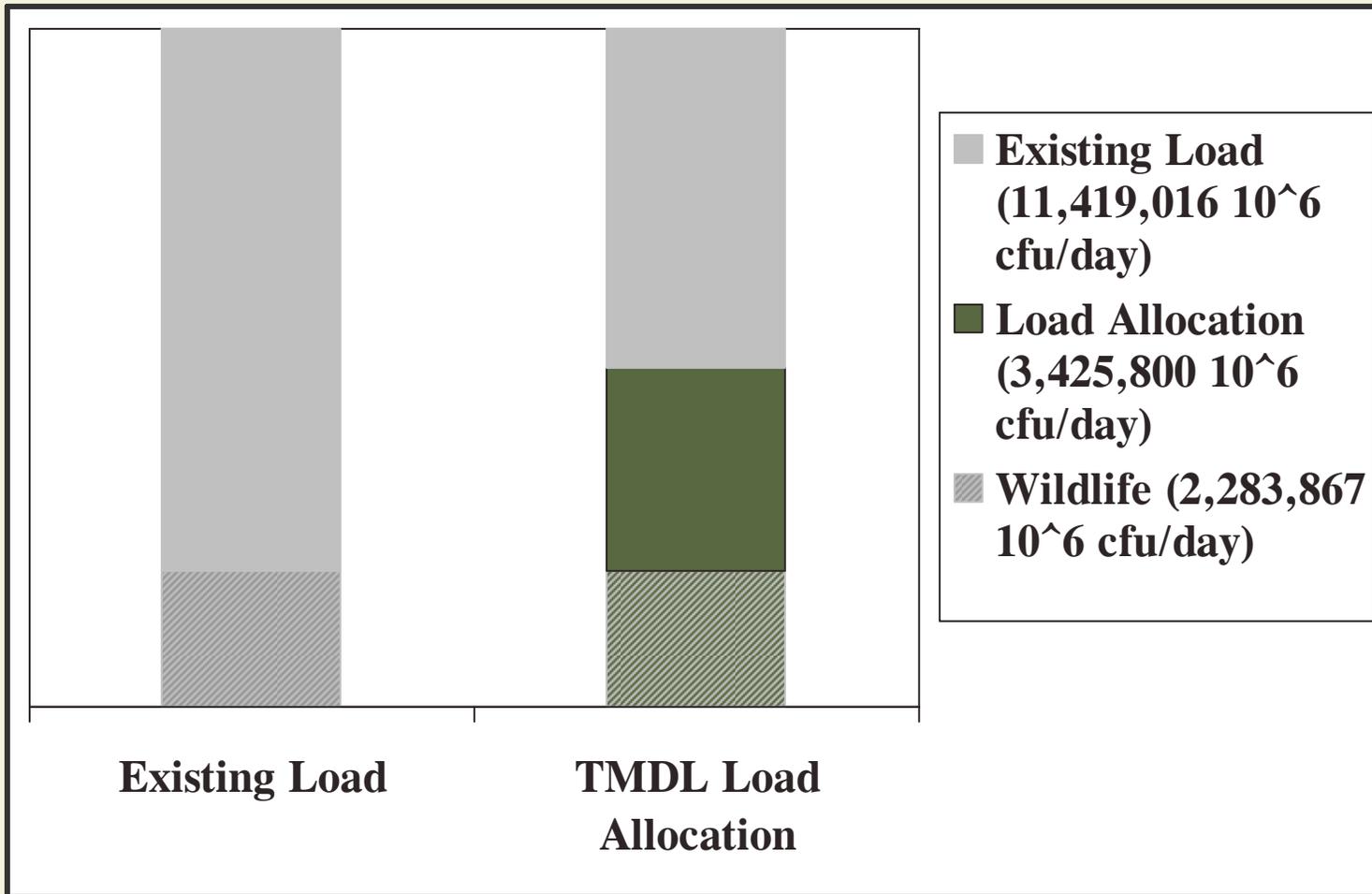
# Current Option



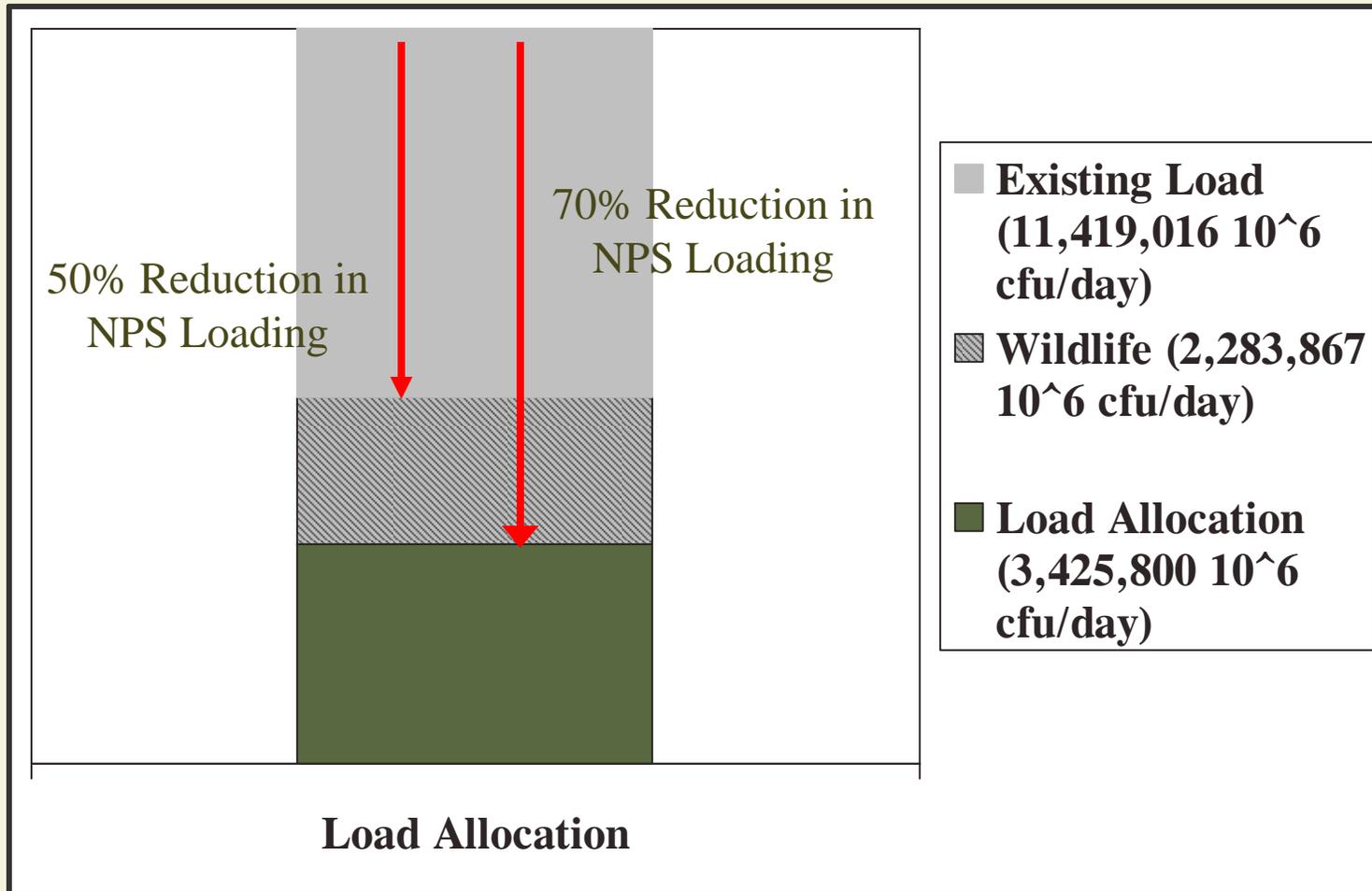
# TMDL Nonpoint Source Loads (LA)



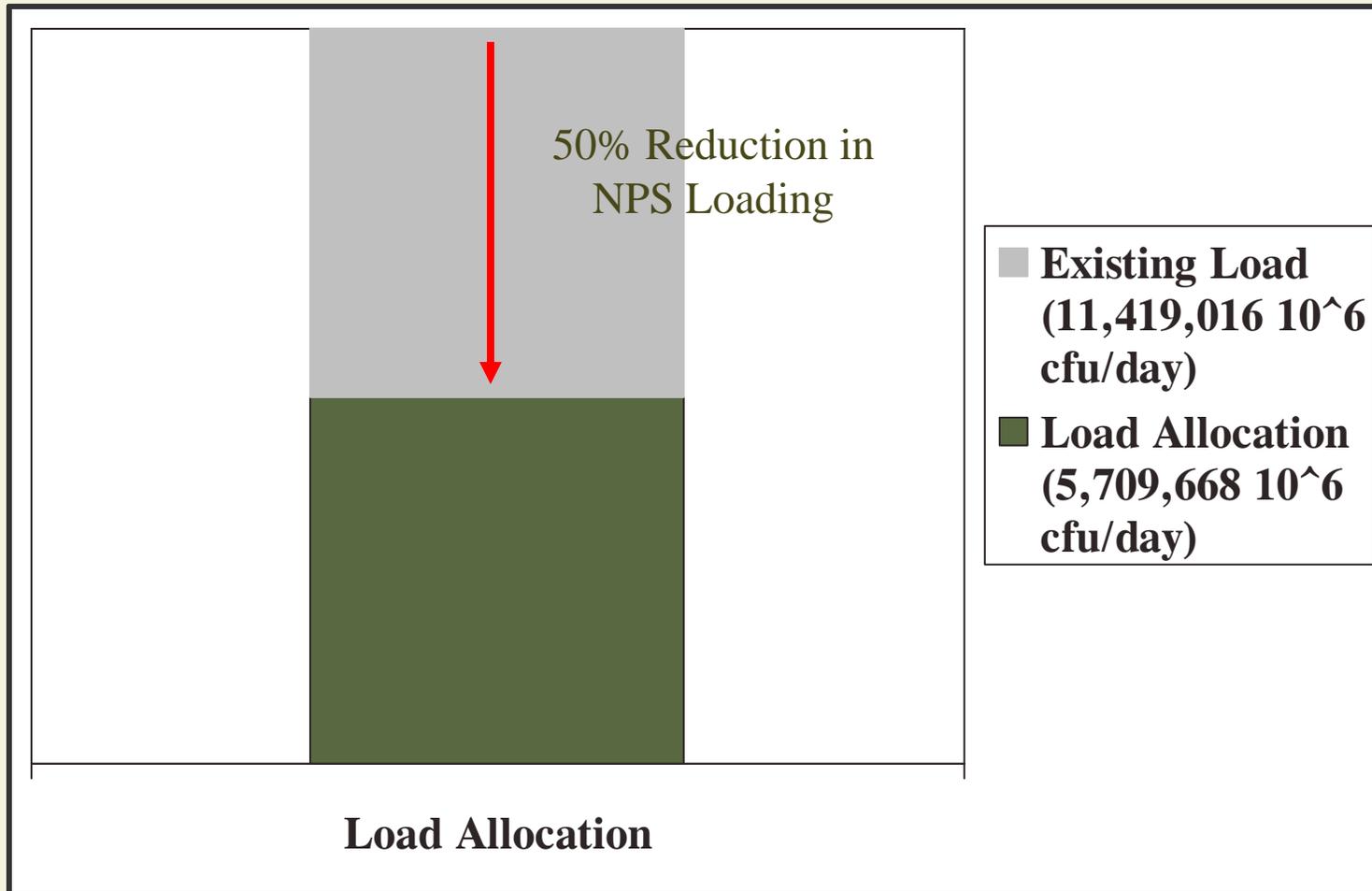
# Proposed LA Scenario



# Ignore Wildlife Option



# Current Option



# Dealing w/wildlife in Implementation

---



- ▶ Though a 50% reduction in NPS is required to meet WQS, **stakeholders will only be accountable for non-wildlife sources.**
- ▶ Therefore, initial phases of implementation will focus on only non-wildlife sources.
- ▶ Reductions in bacteria levels will be tracked to monitor progress.

# Waste Load Allocation

---



- ▲ Flatonia WWTF
  - ▲ 0.25 mgd
  - ▲ Existing Load =  $39 \times 10^6$  cfu/day
  - ▲ WLA =  $189 \times 10^6$  cfu/day
  
- ▲ Waelder WWTF
  - ▲ 0.12 mgd
  - ▲ Existing Load =  $29 \times 10^6$  cfu/day
  - ▲ WLA =  $91 \times 10^6$  cfu/day
  
- ▲ TOTAL WLA =  $280 \times 10^6$  cfu/day

# Current Draft TMDL Endpoint

---



Fecal Coliform TMDL ( $10^6$  cfu/day)

	TMDL	WLA	LA	MOS
Peach Creek	6,010,895	280	5,709,668	300,947

# Current Draft TMDL Endpoint

---



*E. coli* TMDL ( $10^6$  cfu/day)

	TMDL	WLA	LA	MOS
Peach Creek	3,846,973	179	3,654,188	192,606

# Next Phase

---



- ▲ So, where do we go from here?
- ▲ Draft TMDL Report
- ▲ Release Draft TMDL Report for Public Comment
- ▲ Address Public Comments
- ▲ TCEQ Adoption
- ▲ EPA Approval
- ▲ Adaptive Implementation