

**Urban Nonpoint Source Water Quality Educational Program  
for Households Living Along Portions of Bennetts Bayou  
and Bayou Desiard in the City of Monroe in  
Ouachita Parish, Louisiana**

**Final Report**

**CFMS Interagency Agreement No. 515792**

**Submitted by:  
LSU Agricultural Center  
Louisiana Cooperative Extension Service**

## INTRODUCTION

The Louisiana Department of Environmental Quality (LDEQ) Nonpoint Source Management Program identified alternative lawn care as an important component to address the reduction of urban nonpoint source pollution (LDEQ 1993). The lawn care program focuses on lawn care alternatives for the protection of water quality and functions as a public outreach, education and awareness campaign.

Numerous studies, as summarized in *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (USEPA 1993), have documented the potential for improper lawn and garden care impacts on water quality. Many household activities can generate pollutants that may affect water quality. Common household nonpoint source pollutants include paints, solvents, detergents, cleaners, and automotive products such as antifreeze and oil (USEPA 1993). A majority of households surveyed apply fertilizers and/or pesticides. Lawn and garden care practices have the potential to adversely affect water quality of urban waterways. The major pollutants found in runoff from urban areas include sediment, nutrients, oxygen-demanding substances, pathogenic bacteria and viruses (USEPA 1993). Sediments eroded from bare-soil areas, nutrients from over-fertilization, oxygen-demanding organic matter such as leaf and grass clippings, excessive pesticide use, improper vegetation selection and over-watering can all contribute to water quality degradation. A number of studies (USEPA 1993) estimate the percentage of improperly disposed materials ranges anywhere between 15% to 83%. Ignorance and/or lack of proper disposal options is cited as the major cause of this pollution activity (USEPA 1993). Proper management techniques can possibly reduce the need for fertilization and pesticide use.

Some management techniques include, but are not limited to: (1) mowing the lawn when grass blades are at appropriate height; (2) leave grass clippings on the lawn (if mowed at appropriate height) to provide nutrients; (3) if fertilization is necessary, test soils to determine necessary amount; (4) utilize organic/slow-releasing fertilizers; (5) pre-determine pest problems for appropriate selection and application of pesticides; and (6) compost yard wastes for future source of nutrients.

The project area was located near the center of the Ouachita River Basin. Bayou Desiard (080701) is an 1100 acre oxbow lake. It serves as a source of water for the City of Monroe along with Bayou Bartholomew, Black Bayou Lake and the Ouachita River. Water quality is impacted by nutrients, pH, siltation and suspended solids from irrigated crop production, land development and urban runoff/storm sewers. Bennetts Bayou is a small bayou that drains the western portions of Monroe and flows into Bayou Lafourche.

Bayou Desiard loops around Black Bayou Lake which covers 1645 acres on the north end of the project area. The Monroe Municipal Airport, Monroe Industrial Park and Northeast Louisiana University are south of the project area. Bennetts Bayou flows through urban residential areas on the northwestern side of Monroe before it flows through the agricultural lands that lie just west and north of the city. Approximately 350-400 residences are located along the banks of Bayou

Desiard, including those in Frenchman's Bend, Treasure Island, Fink's Hide-a-Way, Cypress Point, Lakeshore and Bonaire Subdivisions.

## **OBJECTIVES**

The main objective of this educational program was to reduce nonpoint source water pollution from urban area by increasing awareness, understanding and adoption of Best Management Practices (BMPs) by urban households living along portions of Bennetts Bayou and Bayou Desiard in Monroe and Ouachita Parish, Louisiana. This urban portion of the Bennetts Bayou Watershed Project (see attached map) focuses on reduction of sediments, nutrients, bacteria, oil and grease that often exist in urban storm water runoff.

The Louisiana Cooperative Extension Service (LCES) worked to educate people who live within the residential areas of the watershed on the types of best management practices that should be implemented to reduce pollutants that exist within urban and residential parts of the watershed. The target audiences within the watershed project area included households, businesses and public area maintenance staff, who routinely perform household, building maintenance, lawn and garden care.

A pre-project survey was implemented within the neighborhoods along Bayou Desiard and Bennetts Bayou to measure the level of knowledge that exists about these topics. LCES then implemented a series of educational events, developed and disseminated educational materials, and hosted workshops and field days that provide residences within the neighborhoods information about the topics related to reduction of nonpoint source pollution. Following the educational events, a post survey was conducted to measure the effectiveness of the educational program in changing behaviors and increasing the utilization of urban nonpoint source best management practices.

## **PROJECT TASK**

- 1. Organize and coordinate: LCES will be responsible for project implementation including publicity of the project, solicitation for demonstration participation, coordinating personnel necessary for BMP implementation, coordination of and implementation of educational workshops and evaluation of the project's success.**

LCES specialist and parish agents were responsible for project coordination and met throughout the contract period. Soil, water, landscaping, and horticulture specialists from LCES were used in demonstrations, site identification, site development and BMP implementation.

- 2. Report quarterly to LDEQ: reporting requirements include, but are not limited to, completion of the project monitoring report, documentation of MBE/WBE expenditures, and documentation of federal and local funds expended.**

All quarterly reports were filed with LDEQ to include project monitoring reports and MBE/WBE expenditures.

3. **Develop a pre-survey that will be used to determine existing nonpoint source water quality related household/business/lawn care practices of households before implementation of the educational program.**

A pre-survey was developed by LCES and approved by LDEQ and EPA. A copy of the survey, cover letter, LDEQ and EPA comments are included in this report. The pre-survey was sent to 701 households within the study area and there were 135 responses. A tabulation of the pre survey results are included in this report (Appendix A).

4. **Select 5 demonstration sites for household/business/lawn care BMP implementation and demonstration.**

Letters were sent to seven homeowners that indicated possible further involvement with the project. Two responses were received. These two households were then designated as the primary locations for the demonstration sites. The two locations were 215 and 217 Raymond Drive, Monroe, Louisiana. These two locations are located on Bayou Desiard and had a number of problem areas that lent themselves to ideal BMP implementation.

5. **Select appropriate educational materials and BMPs to be implemented based on pre-survey and demonstration sites.**

Based on pre-survey results and discussions with LCES specialist, and field agents, eight BMP demonstrations were selected and installed. Pictures are provided (Appendix B).

They were:

- Organic filter strip and runoff landscaping at water's edge.
- Water control and runoff diversion under large oak tree.
- Fertilizer and weed control of existing lawn.
- Compost sites.
- Terracing of lawn on slope in backyard to control erosion.
- Re-do drainage system for better control of runoff.
- Install catch basins and extend drainage into bog filter beds.
- Establish erosion control through vegetation under various trees within the landscape.

Educational materials needed were identified and developed. Copies are provided as part of this report (Appendix C).

They were:

- Landscape Bed Preparation for Ornamental Plants
- Don't Bag It: Lawn Care
- Nonchemical Weed Control for Home Landscapes
- Louisiana Lawns Fact Sheet
- Louisiana Lawn Maintenance

- Louisiana Lawns Fact Sheet-Turfgrass for Louisiana Lawns
- Backyard Composting: Composting Mulch
- Backyard Composting: Garbage Can Composter
- A Drop in the Bucket-Practical Ways to Conserve Water in Your Home
- A Drop in the Bucket-Water Conservation in the Home Landscape

**6. Publicize project through news releases, newsletter, presentations at local meetings and traditional LCES media outlets.**

Project was publicized as follows:

- Local newspaper articles were used to publicize survey
- Local television "Morning Show" was used to publicize project and survey
- County Agents' newspaper column was used to publicize project and survey
- County Agents' "radio talk show" was used to publicize project and survey. KMLB, on October 16th and 23<sup>rd</sup> and KLIC on October 19th and 26<sup>th</sup>.
- A personnel letter was sent to 450 homes in the project area announcing the field day and workshop.
- Louisiana Gardener published a story on the project in the Nov/Dec 1999 issue.

Copies of print material are provided in this report (Appendix D).

**7. Distribution of educational materials and programs to homeowner associations, schools, businesses, lawn and garden centers, 4-H programs, Family and Community Education Clubs and other groups as appropriate.**

Educational materials were distributed to over 600 individuals/ households during the entire project. Additionally, 250 packets of educational materials were sent by direct mail to households living along Bayou Desiard and Bennetts Bayou. A educational packet is included in this report.

**8. Conduct educational workshops at 5 demonstration sites.**

Workshops for general audiences and train-the-trainer workshops for Master Gardeners were performed. Both groups were able to tour (open house) the sites.

Educational Workshops were conducted as follows:

- October 18th, District Garden Club (30)
- October 21st, Turf Growers (60)
- October 21st, Master Gardens (15)
- December 9th, Open house event at demonstration sites (450 invited, 10 in attendance)
- December 9th, seminar at County Agents' office (450 invited, 0 in attendance due to inclement weather)

9. **Prepare and submit post-survey to determine changes in household/business/lawn care practices of households in the project area after implementation of the educational programs.**

A post-survey was developed by LCES and mailed to a random sample of 250 households along Bayou Desiard and Bennetts Bayou and 62 replies were received. A copy of the survey and cover letter are included in this report. A tabulation of the results are included (Appendix E).

10. **Develop recommendations for urban nonpoint source water quality educational programming for use in other urban areas.**

Educational outreach is key to environmental education. The majority of people do not understand where and how pollution effects the environment especially from nonpoint sources. As with most attitudinal changes, people have to be exposed to the problem for a sizeable length of time before change will occur. Environmental education is no different. To effect change, the information must be presented over and over again so as to touch every audience and all age groups. The one recommendation that can be made for teaching environmental education is that it be incorporated into existing programs as a means of guaranteeing a large audience. An example would be a home and garden show where historically many people are in attendance thereby insuring a large audience will be in attendance. Nonpoint source topics can then be integrated into existing subject matter. Also, it is recommended that programs be developed that can be demonstrated in more than one place. It is easier to go to where the people are then to try and get them to come to you.

11. **Evaluate project for successes and areas-of-concern.**

Success was documented through outreach activities such as educating residents about nonpoint source pollution and its relation to lawn, home and garden care practices as contained in this report. There were no areas of concern.

- 12: **Final report (primarily a review of the project and it's successes, concerns and resulting management recommendations); this is a comprehensive report documenting implementation of the project from start to finish.**

All tasks are completed.

# **Appendix A**



Louisiana State University  
**Agricultural Center**  
Louisiana Cooperative Extension Service

**Ouachita Parish Office**  
704 Cypress Street  
West Monroe, LA 71291-2922

(318) 323-2251  
Fax: (318) 387-9376

July 30, 1998

Dear Homeowner,

Because your residence is adjacent to Bayou DeSiard you have been chosen to receive important information about how the things you do in your yard and around your home affect the quality of the water in the bayou.

The survey that is included with this letter is very important for the Department of Environmental Quality and LSU Agricultural Center Extension Service. It will help to evaluate what management practices should receive attention in the upcoming education and demonstration program called Urban Nonpoint Source Water Quality Program.

Please complete the survey questions and return it to the address in Baton Rouge as soon as possible. After the survey responses have been tallied some visits will be made to selected homeowners to ask if they are interested in setting up a demonstration site.

The residences that are selected will cooperate with the Extension Service personnel in correcting any home grounds management practices that might be improved to handle yard maintenance. For example, an erosion problem, a fertilization problem, a problem with disposal of household waste, etc. could be polluting the bayou water.

If you have any questions at all, please feel free to call the Ouachita Parish Extension Office and ask for either one of us.

Sincerely,

Margaret S. Hayes  
Home Economist

John W. Barnett, Ph.D.  
County Agent

MSH:JWB/dr

Enclosure



## Bayou Desiard Nonpoint Source Water Quality Survey

**Instructions:**

Thank you for taking time to answer this survey. Please answer each question to the best of your knowledge. Some questions have more than one part, so please answer all parts if necessary.

**Example:** Do you have a backyard compost pile? Yes \_\_\_\_\_ No \_\_\_\_\_

**If Yes:**

a. What materials do you put into your compost pile? *(Check all that apply)*

- Grass clippings
- Leaves
- Food scraps
- Dog/cat feces
- Other *(Please specify)* \_\_\_\_\_

- If you answered *Yes*, then answer additional question (a).
- If you answered *No*, then move to the next question.

1. How long have you lived in your present home? \_\_\_\_\_ years.
2. How many hours, on the average, did you spend working in your yard and garden in the past 12 months?  
\_\_\_\_\_ hours

### LAWN CARE

3. How many hours are spent monthly working on vehicles and equipment on your property? \_\_\_\_\_ hours
4. Who cuts your lawn?
  - yourself
  - neighbor
  - commercial lawn care company
  - other *(Please specify)* \_\_\_\_\_

5. What is the approximate size of your lawn? \_\_\_\_\_ feet by \_\_\_\_\_ feet

6. Did you fertilize your lawn during the past 12 months? Yes \_\_\_\_\_ No \_\_\_\_\_

*If Yes:*

a. How many times during the year? \_\_\_\_\_

b. During (*Check all that apply*):

- spring
- summer
- fall
- winter

c. Who applies your lawn and garden fertilizer?

- yourself
- neighbor
- commercial lawn care company
- other (*Please specify*) \_\_\_\_\_

d. The fertilizer is purchased from:

- nursery
- discount store (Wal-Mart, etc.)
- hardware store
- provided by commercial lawn care company
- other (*Please specify*) \_\_\_\_\_

e. How much fertilizer did you apply? \_\_\_\_\_ lbs.

f. What was the analysis of that fertilizer? (For example: 8-8-8-, 13-13-13, etc.)

_____ N	_____ P	_____ K
_____ N	_____ P	_____ K

7. When was the last time you had a soil sample taken from your lawn and analyzed? \_\_\_\_\_ (*date*)

a. Did you follow the soil test recommendations? Yes \_\_\_\_\_ No \_\_\_\_\_

8. Did you apply insect, weed or disease control chemicals to your lawn in the past 12 months?

Yes \_\_\_\_\_ No \_\_\_\_\_

If Yes:

a. How many times this year? \_\_\_\_\_

b. During: (*Check all that apply*)

- spring
- summer
- fall
- winter

c. Who applies the insect, weed or disease control chemicals? (*Please specify*)

- yourself
- neighbor
- commercial lawn care company
- other (*Please specify*) \_\_\_\_\_

d. The chemicals were purchased from:

- nursery
- discount store
- hardware store
- provided by commercial lawn care company
- other (*Please specify*) \_\_\_\_\_

e. What chemicals did you use? (*Please list*)

- 1) \_\_\_\_\_ 3) \_\_\_\_\_
- 2) \_\_\_\_\_ 4) \_\_\_\_\_

f. Was the container rinsed before being disposed of?

Yes \_\_\_\_\_ No \_\_\_\_\_

g. How was the empty container disposed of?

9. Do you bag your grass clippings and send them with the trash?

Yes \_\_\_\_\_ No \_\_\_\_\_

If No:

a. What do you do with them?

10. Do you bag your tree leaves and send them with the trash?

Yes \_\_\_\_\_ No \_\_\_\_\_

If No:

a. What do you do with them?

## GARDEN CARE

11. Did you fertilize your landscape plants during the past 12 months?

Yes \_\_\_\_\_ No \_\_\_\_\_

If Yes:

a. How many times a year? \_\_\_\_\_

b. During: (*Check all that apply*)

- spring
- summer
- fall
- winter

c. The fertilizer is purchased from:

- nursery
- discount store
- hardware store
- provided by commercial lawn care company
- other (*Please specify*) \_\_\_\_\_

12. Do you plant a vegetable garden at your home? Yes \_\_\_\_\_ No \_\_\_\_\_

If Yes:

a. About how large is it? \_\_\_\_\_ feet by \_\_\_\_\_ feet

b. Do you plant for: *(Check all that apply)*

- spring
- summer
- fall
- winter

c. How many times did you apply fertilizer to the vegetable garden in the past 12 months?  
\_\_\_\_\_ Times \_\_\_\_\_ Never

d. How many times did you apply an insect, weed or disease control chemical to the garden in the past 12 months?  
\_\_\_\_\_ Times \_\_\_\_\_ Never

e. How many times did you apply compost to the vegetable garden in the past 12 months?  
\_\_\_\_\_ Times \_\_\_\_\_ Never

f. How many times did you apply mulch to the vegetable garden in the past 12 months?  
\_\_\_\_\_ Times \_\_\_\_\_ Never

13. Do you have a backyard compost pile? Yes \_\_\_\_\_ No \_\_\_\_\_

*If Yes:*

a. What materials do you put into your compost pile? *(Check all that apply)*

- grass clippings
- leaves
- food scraps
- pet litter
- other *(Please Specify)* \_\_\_\_\_

14. How do you keep grass and weeds from growing along your fence line, driveway and sidewalks?

- electric weed eater or edger
- gas-powered weed eater or edger
- by hand or with a shovel
- applying used motor oil or diesel fuel
- applying a weed chemical, such as Roundup, etc.
- other *(Please specify)* \_\_\_\_\_

15. Is soil erosion a problem with your lawn and garden? \_\_\_\_\_ Yes \_\_\_\_\_ No

## EQUIPMENT MAINTENANCE

16. What type of lawn and garden equipment do you use? (*Check all that apply*)

- manual push mower
- push gas-powered mower
- riding lawn mower
- electric edger
- gas-powered edger
- other (*Please specify*) \_\_\_\_\_

17. Do you change the oil in your lawn or garden equipment? Yes \_\_\_\_\_ No \_\_\_\_\_

*If Yes:*

a. How often? (*Please specify*) \_\_\_\_\_

b. How do you dispose of used oil?

18. Do you change the engine oil in your car or motorcycle at home? Yes \_\_\_\_\_ No \_\_\_\_\_

*If Yes:*

a. How do you dispose of the used oil?

b. How do you dispose of the used oil filters?

19. Do you change the antifreeze in your car at home? Yes \_\_\_\_\_ No \_\_\_\_\_

*If Yes:*

a. How do you dispose of the used antifreeze?

## HOME CARE

20. Does your home have rain gutters?

- yes
- no

21. Is your home connected to a public sewerage system? Yes \_\_\_\_\_ No \_\_\_\_\_

*If No:*

- a. What type of sewerage system is being used?
  
  
  
  
  
- b. Is your home connected to a private water well?
  - yes
  - no

23. Do you use backflow prevention devices on your outdoor water faucets?  
 yes  
 no

24. Do you have a food grinder disposal unit in your kitchen?  
 yes  
 no

25. If you have pets, how do you dispose of the dog/cat feces?

26. Do you ever treat wooden porches, decks or pilings? Yes \_\_\_\_\_ No \_\_\_\_\_

*If Yes:*

- a. If yes, what types of products do you use?
  
  
  
  
  
- b. How do you dispose of the materials?

27. Do you paint your home? Yes \_\_\_\_\_ No \_\_\_\_\_

*If Yes:*

- a. How often?
  
  
  
  
  
- b. How do you dispose of your paint materials?

Mr. William A. Carney:

This letter is to inform you that the survey for the Monroe Project has been approved by EPA. Attached is a list of comments EPA has provided. They are as follows:

1. How many hours are spent working on vehicles and equipment on your property?

Perhaps this should follow question # 2.

2. Maybe question #16 should read, "Do you ever change the oil in your lawn or garden equipment?"

3. Some additional questions to ask the homeowner/tenant is:

- a. Do you ever treat wooden porches, decks or pilings? If so what types of products

do you use? How do you dispose of the materials?

- b. Do you paint your home? How often? How do you dispose of your paint materials?

If there are any questions or comments regarding this letter, please let me know.

Thank You,  
Kendra J. Harmason  
Environmental Specialist II

cc: Bill Branch

# Bayou Desiard Nonpoint Source Water Quality Pre Survey Results

Total Responding: N = 135

1. How long have you lived in your present home?  
Average: 22 years
2. How many hours, on the average, did you spend working in your yard and garden in the past 12 months?  
Average: 166 hours

## LAWN CARE

3. How many hours are spent working on vehicles and equipment on your property?  
Total: 395 hours
4. Who cuts your lawn?  
93 yourself  
11 neighbor  
29 commercial lawn care company  
0 other (*Please specify*)
5. What is the approximate size of your lawn?  
Average: 42,000 square feet
6. Did you fertilize your lawn during the past 12 months?  
Yes -71 No - 61

### *If Yes:*

- a. How many times during the year?  
35 once a year  
25 twice a year  
4 3 times a year
- b. During (*Check all that apply*):  
67 spring  
14 summer  
22 fall  
2 winter

c. Who applies your lawn and garden fertilizer?

- 68 yourself
- 2 neighbor
- 10 commercial lawn care company
- 0 other (*Please specify*)

d. The fertilizer is purchased from:

- 21 nursery
- 30 discount store (Wal-Mart, etc.)
- 26 hardware store
- 6 provided by commercial lawn care company
- 0 other (*Please specify*)

e. How much fertilizer did you apply?

**Average: 120 pounds**

f. What was the analysis of that fertilizer? (For example: 8-8-8-, 13-13-13, etc.)

- 27 said 8-8-8
- 23 said 13-13-13

7. When was the last time you had a soil sample taken from your lawn and analyzed?

**Average: 3 years**

a. Did you follow the soil test recommendations?

**Yes - 20 No - 5**

8. Did you apply insect, weed or disease control chemicals to your lawn in the past 12 months?

**Yes - 66 No - 60**

*If Yes:*

a. How many times this year?

**Average: 4 times**

b. During: (*Check all that apply*)

- 51 spring
- 36 summer
- 11 fall
- 6 winter

c. Who applies the insect, weed or disease control chemicals? *(Please specify)*

- 64 yourself
- 4 neighbor
- 8 commercial lawn care company
- 0 other *(Please specify)*

d. The chemicals were purchased from:

- 14 nursery
- 31 discount store
- 27 hardware store
- 7 provided by commercial lawn care company
- 0 other *(Please specify)*

e. What chemicals did you use? *(Please list)*

- 1) Round up - 25      3) Fire Ant Killer -12
- 2) Weed Out -19      4) Insect control - 3

f. Was the container rinsed before being disposed of?

Yes - 26    No - 26

g. How was the empty container disposed of?

50 - Garbage    3 - Burned

9. Do you bag your grass clippings and send them with the trash?

Yes - 16    No - 114

*If No:*

a. What do you do with them?

- 25 let them lay where ever they fall.
- 3 burn them in winter; mulch in summer
- 39 mulch
- 14 compost
- 2 put in flower beds

10. Do you bag your tree leaves and send them with the trash?

Yes - 28    No - 76

*If No:*

- a. What do you do with them?
- 37 Mulch
  - 6 Nothing
  - 3 Garbage
  - 12 Compost
  - 8 Burn

## GARDEN CARE

11. Did you fertilize your landscape plants during the past 12 months?

Yes - 74 No - 52

*If Yes:*

a. How many times a year?

Average: 2 times

b. During: (*Check all that apply*)

35 summer

59 spring

17 fall

5 winter

c. The fertilizer is purchased from:

21 nursery

30 discount store

19 hardware store

5 provided by commercial lawn care company

0 other (*Please specify*)

12. Do you plant a vegetable garden at your home?

Yes - 32 No - 97

*If Yes:*

a. About how large is it?

Average: 400 square feet

b. Do you plant for: (*Check all that apply*)

28 spring

15 summer

16 fall

4 winter

c. How many times did you apply fertilizer to the vegetable garden in the past 12 months?

**Average: twice per year; 19 responded - Never**

d. How many times did you apply an insect, weed or disease control chemical to the garden in the past 12 months?

**Average: twice per year; 26 responded - Never**

e. How many times did you apply compost to the vegetable garden in the past 12 months?

**Average: twice per year; 24 responded - Never**

f. How many times did you apply mulch to the vegetable garden in the past 12 months?

**Average: twice per year; 27 responded - Never**

13. Do you have a backyard compost pile?

**Yes - 30 No - 93**

*If Yes:*

a. What materials do you put into your compost pile? (*Check all that apply*)

23 grass clippings

27 leaves

10 food scraps

0 pet litter

0 other (*Please Specify*) *vegetable and fruit peels*

14. How do you keep grass and weeds from growing along your fenceline, driveway and sidewalks?

56 electric weed eater or edger

69 gas-powered weed eater or edger

9 by hand or with a shovel

6 applying used motor oil or diesel fuel

33 applying a weed chemical, such as Roundup, etc.

0 other (*Please specify*)

15. Is soil erosion a problem with your lawn and garden?

Yes - 14 No - 115

## EQUIPMENT MAINTENANCE

16. What type of lawn and garden equipment do you use? *(Check all that apply)*

16 manual push mower

58 push gas-powered mower

84 riding lawn mower

28 electric edger

56 gas-powered edger

other *(Please specify)* Gas Powered Trimmer

17. Do you change the oil in your lawn or garden equipment?

Yes - 68 No - 56

*If Yes:*

a. How often? *(Please specify)*

Average: twice per year

b. How do you dispose of used oil?

12 Put in container and put in garbage pick up.

5 Bring to gas station that recycles it.

3 Burn

1 drain on the ground

18. Do you change the engine oil in your car or motorcycle at home?

Yes - 9 No - 120

*Yes:*

a. How do you dispose of the used oil?

2 Put in container and put in garbage pick up.

2 Bring to gas station that recycles it.

b. How do you dispose of the used oil filters?

6 Put in container and put in garbage pick-up.

19. Do you change the antifreeze in your car at home?

Yes - 5 No - 114

*If Yes:*

a. How do you dispose of the used antifreeze?

**Ditch**

**Pour down drain**

## HOME CARE

20. Does your home have rain gutters?

Yes - 45 No - 85

21. Is your home connected to a public sewerage system?

Yes - 132 No - 3

*If No:*

a. What type of sewerage system is being used?

**Septic Tank**

**2 - Treatment pond**

b. Is your home connected to a private water well?

Yes - 1 No - 14

22. Do you use backflow prevention devices on your outdoor water faucets?

Yes - 3 No - 90

23. Do you have a food grinder disposal unit in your kitchen?

Yes - 74 No - 48

24. If you have pets, how do you dispose of the dog/cat feces?

**15 Cat feces collected in plastic bag and put in trash that is collected weekly**

**3 Put in corner of yard**

25. Do you ever treat wooden porches, decks or pilings?

Yes - 23 No - 107

*If Yes:*

a. If yes, what types of products do you use?

**18 Thompsons water seal on deck**

**1 diesel fuel**

b. How do you dispose of the materials?

**Use it all up**

**Burn**

**4 City Garbage**

27. Do you paint your home?

**Yes - 67 No - 65**

*If Yes:*

c. How often?

**Average: 5 years**

d. How do you dispose of your paint materials?

**40 trash**

**Appendix B**



**Organic filter strip and runoff landscaping at water's edge.**



**Water control and runoff diversion under large oak tree.**



**Fertilizer and weed control of existing lawn.**



**Compost site.**



**Terracing of lawn on slope in backyard to control erosion.**



**Re-do drainage system for better control of runoff.**



**Install catch basins and extend drainage into bog filter beds.**



**Establish erosion control through vegetation under various trees within the landscape.**