Butte County Watershed Education and Outreach Project

Survey Summary

In order to assess stakeholder knowledge about the watersheds in the Lower Tuscan Aquifer Region, a telephone survey was developed and conducted prior to implementing outreach efforts. The telephone calls were placed to random numbers throughout the County for both the pre- and the post-survey, with a minimum of 600 adult Butte County residents responding to each survey.

Working with the project team and survey firm, we developed the appropriate questions to determine the level of awareness of local watershed issues prior to project implementation. The pre-survey was conducted in September of 2008.

After the first survey was conducted, a workshop was held in January of 2009 to provide information for residents about watershed issues and positive practices associated with rural living and watershed health. This workshop was well-attended by rural residents of Butte County.

Unfortunately, work on the project had to stop immediately after the rural workshop due to the 2009 State of California budget crisis. This interruption of the project likely had an impact on the overall effectiveness of outreach efforts.

Work on the project resumed in August of 2009. A major component of the project was the development of five different fact sheets that provide Butte County residents with useful information on how they can have a positive impact in the urban and rural portions of the watershed, as well as information about domestic wells, fires and floods and the Butte County Water Cycle.

A second workshop was held in December 2009 to provide urban residents with information about the watershed and how they can have a positive impact on their local watersheds.

The identical phone survey was conducted with another randomly selected sample group of 600 adults after the second workshop was conducted to ascertain what changes, if any, had occurred in stakeholder knowledge of watershed issues.

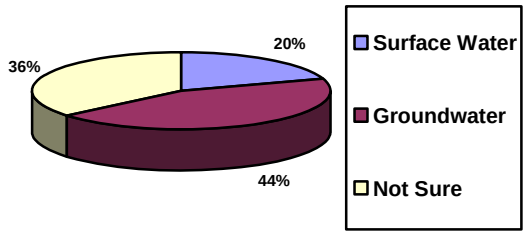
This summary is intended to address the key findings of the survey. Both the pre- and post-survey results are included at the end of this document.

Source of Water Supply

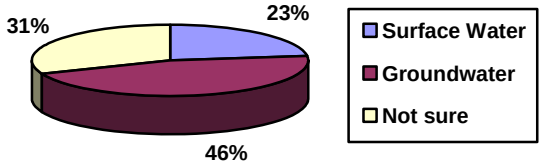
Of those surveyed, more than 30% were unfamiliar with where their domestic water supply comes from: groundwater or a well. Even allowing for the +/- 4.1% margin for sampling error, it is clear that additional outreach efforts are needed to educate Butte County residents about where they get their domestic water source.

Does the water supply in the home where you live come from surface water? From groundwater? Or are you not sure?

2008 Survey Results



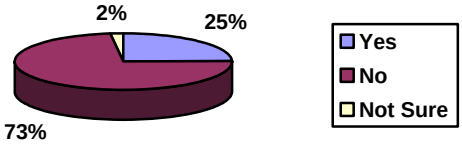
2010 Survey Results



Of those surveyed who answered “groundwater” to the first questions, the majority rely on a municipal water supply derived from groundwater.

Do you have your own well?

2008 Survey Results



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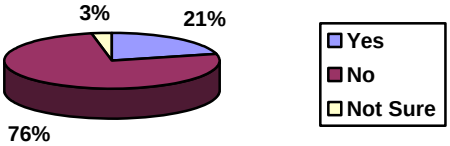


Water Cycle Knowledge

Most surveyed residents either have mistaken notions of, or do not know, what an aquifer is. However, the majority of those surveyed are familiar with how groundwater gets into the ground.

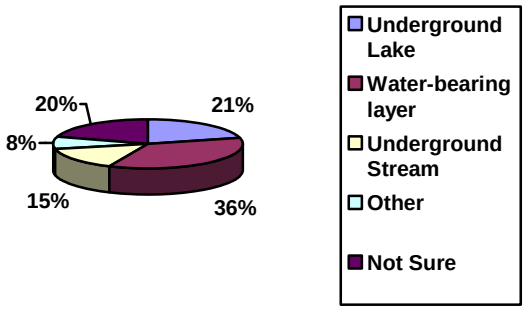
Nearly thirty percent of those surveyed are unsure of what a watershed is. This indicates a continued need for basic public education about what defines a watershed.

97% of surveyed residents know what their primary or closest waterway is, with the majority of residents citing the Feather River as their closest waterway. This information can be found in the raw survey data at the end of this summary. Survey results for this section of questions are below.

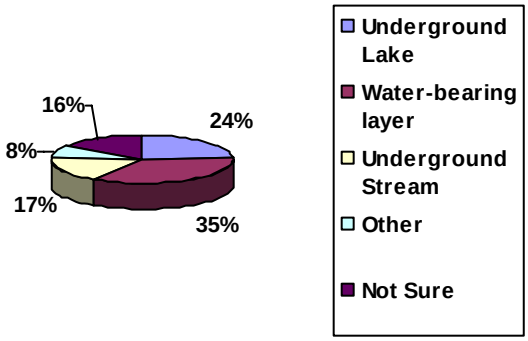
What is an aquifer?

1. *An underground lake*
2. *A water-bearing layer of the earth*
3. *An underground stream*
4. *Other*
5. *Not sure*

2008 Survey Results



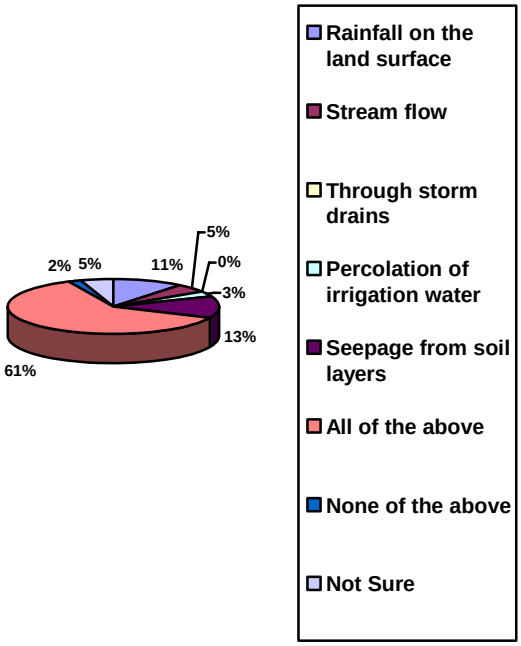
2010 Survey Results



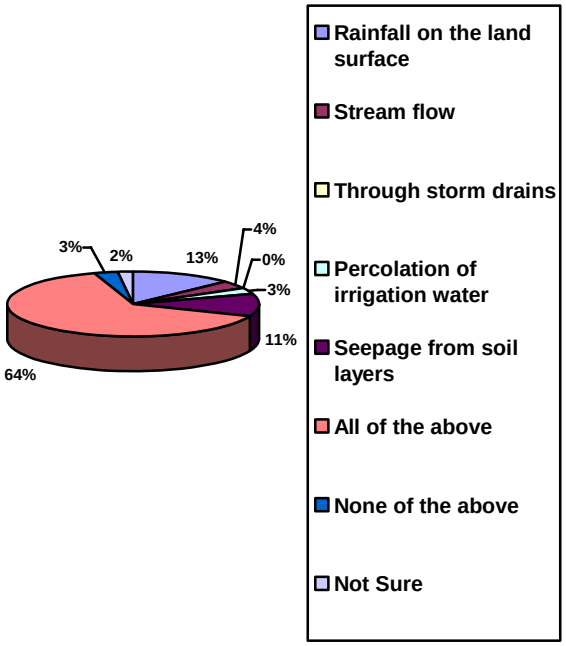
How does groundwater get into the ground?

1. *Rainfall on the land surface*
2. *Stream flow*
3. *Through storm drains*
4. *Percolation of irrigation water*
5. *Seepage from soil layers*
6. *All of the above*

2008 Survey Results



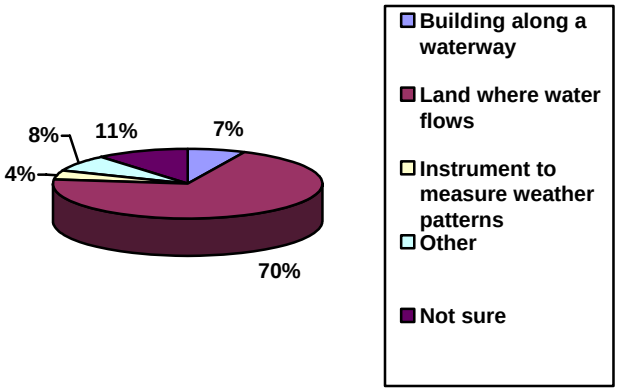
2010 Survey Results



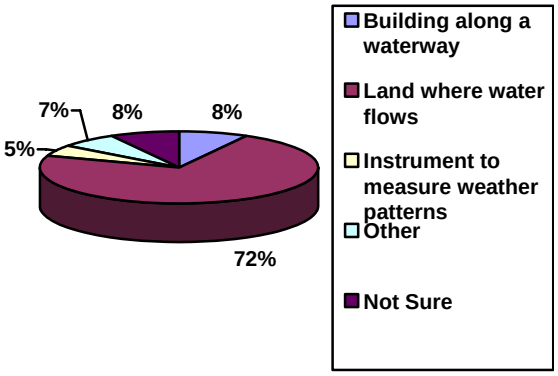
Do you know what a watershed is?

1. *A building along a waterway?*
2. *The land where all the water falls and flows within a basin?*
3. *An instrument to measure weather patterns?*
4. *Something else?*

2008 Survey Results



2010 Survey Results



Watershed Health

Surveyed residents did not demonstrate a strong knowledge of practices that can improve the health of their watershed. There is a clear need for additional public education to increase the level of understanding about appropriate practices residents can employ to positively impact their watershed.

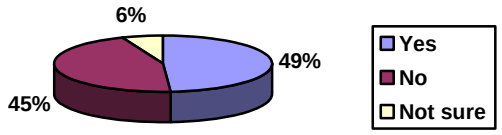
Residents responding to the survey seem to have a better understanding of negative actions that can impact watersheds. Approximately 75% of those surveyed understood that all of the options offered can have a negative impact on the watershed. Additional public education efforts should result in an increase in that level of understanding.

There does not appear to be a strong understanding among those surveyed about what constitutes a healthy watershed. There also does not appear to be a clearly preferred or most often used method of delivery for public education about watersheds and their health. Nearly 50% of those surveyed chose “other” as the method by which they received information about watershed health. The survey did not allow us to determine what delivery methods were included in the “other” category because it was a multiple choice survey. Of the traditional media delivery points, television seems to be the most frequently used. Survey results for this section of questions are below.

Are you aware of practices that can help protect watersheds?

a. Yes
b. No
c. Unsure

2008 Survey Results



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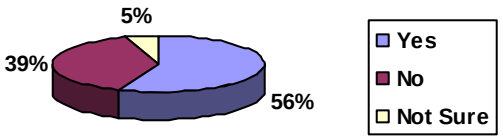
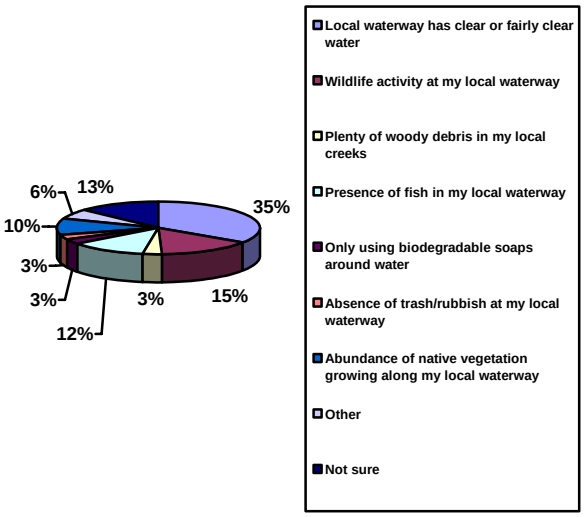


Which one of the following best describes how you personally define watershed health?

d. My local waterway has clear or fairly clear water
e. Wildlife activity at my local waterway
f. There is plenty of woody debris in my local creeks
g. There are fish in my local waterway
h. Only using biodegradable soaps around water
i. I don't see trash/rubbish at my local waterway
j. Lots of native vegetation growing along my local waterway

2008 Survey Results



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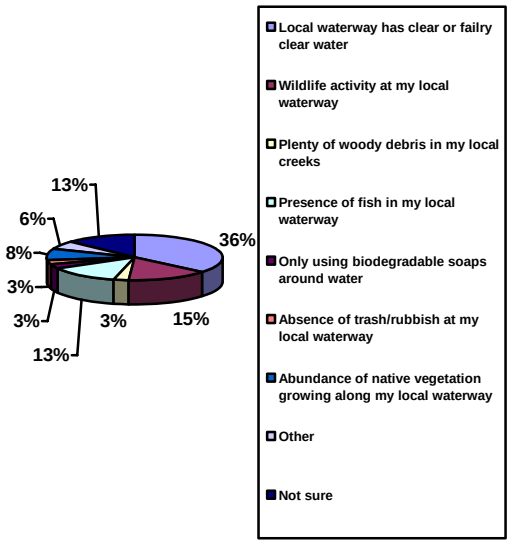
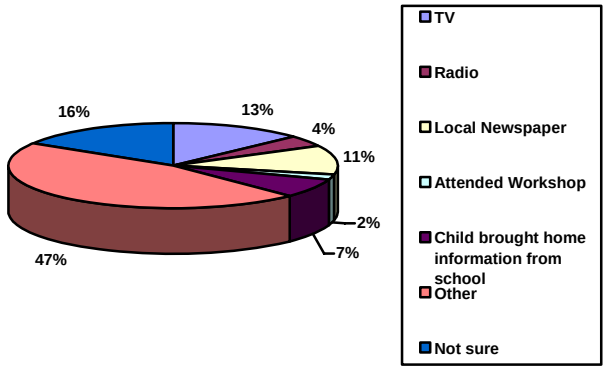


Which of the following best describes how you learned about these practices?

1. *TV*
2. *Radio*
3. *Local newspaper*
4. *Attended workshop*
5. *Child brought home information from school*

2008 Survey Results



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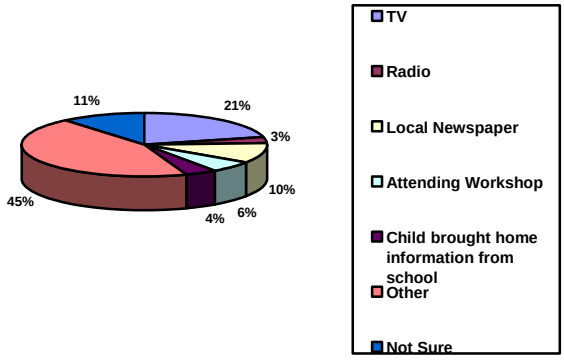
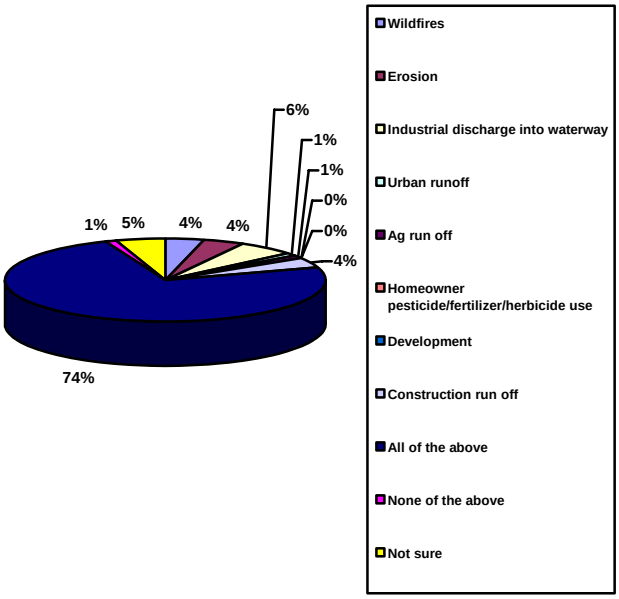


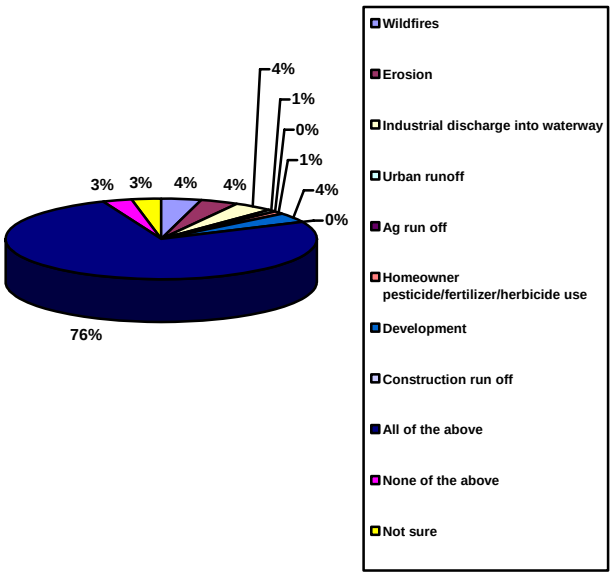
Which of the following impact watershed health?

1. *Wildfires*
2. *Erosion*
3. *Industries discharging waste into local creeks or rivers*
4. *Urban runoff (roads, parking lots, etc.)*
5. *Agricultural runoff*
6. *Homeowner pesticide/fertilizer/herbicide use*
7. *Development*
8. *Construction runoff*
9. *All of the above*
10. *None of the above*

2008 Survey Results



2010 Survey Results



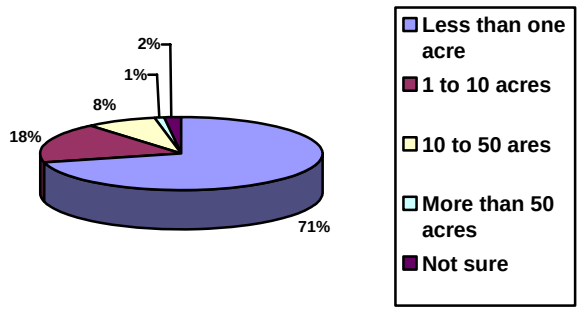
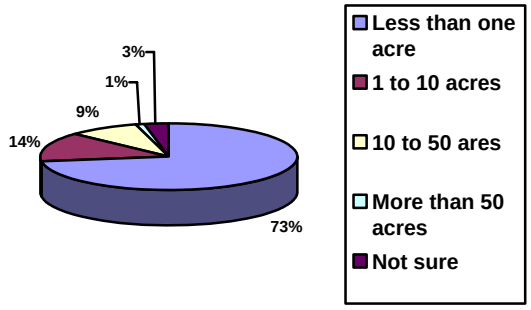
Land Use

Of those surveyed, the majority were unfamiliar with conservation easements. This is true of both the pre- and post-survey. The majority of residents familiar with conservation easements feel that the easements are valuable tools for maintaining watershed health.

A slight shift in response about conservation easements is shown in the post-survey. This may possibly be correlated to the difference in acreage ownership and land use amongst the survey respondents. Survey results for this section of questions are below.

How much land is associated with your property (Do you consider your residence to be in an urban or rural setting?) (if < 10 acres, skip to Q13)

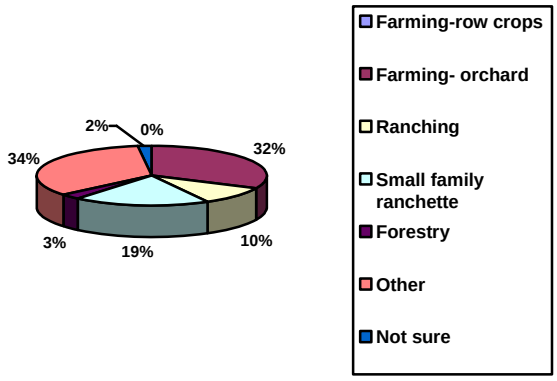
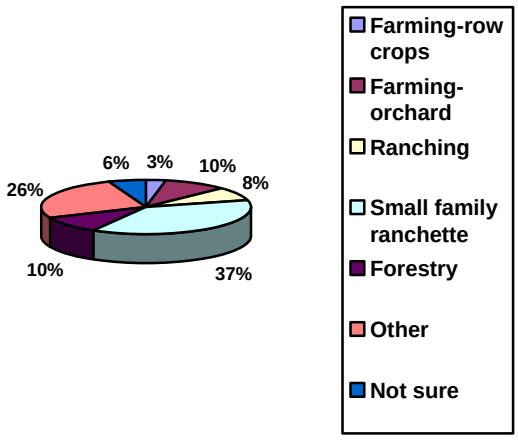
1. *Less than one acre?*
2. *1- 10 acres?*
3. *10-50 acres?*
4. *More than 50 acres?*
5. *Not sure*

2008 Survey Results	2010 Survey Results
	

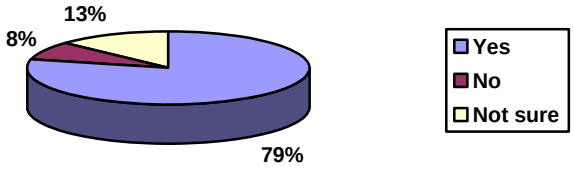
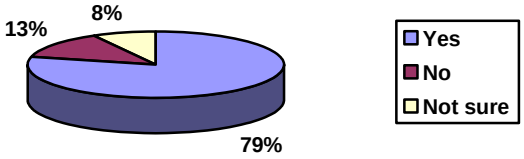
(asked only of those living on > 10 acres)

How do you use your land?

1. *Farming - row crops*
2. *Farming - orchard*
3. *Ranching*
4. *Small family ranchette*
5. *Silvaculture (forestry)*

2008 Survey Results	2010 Survey Results
	

(asked only of those who say they know what a conservation easement is)
Do you feel that such easements are an important tool for maintaining watershed health?

2008 Survey Results	2010 Survey Results
	

The results of the survey indicate a clear need for additional public outreach and education efforts to inform Butte County residents about watersheds, the importance of watersheds and the importance of protecting the health of watersheds. A consistent message (or a small number of messages) delivered in a variety of ways over a long period of time is crucial to increase this level of knowledge.

The raw survey data is included in the material in the next section.

Raw Survey Data

Geography Surveyed: Butte County
Data Collected: 09/16/2008 - 09/20/2008

1	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 4.1%

Does the water supply in the home where you live come from surface water? From groundwater? Or are you not sure?

20%	Surface Water
44%	Groundwater
36%	Not Sure

2	Asked of 480 whose supply comes from groundwater or who are not sure
	Margin of Sampling Error for this question = ± 4%

Do you have your own well?

25%	Yes
74%	No
2%	Not Sure

3	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 4.1%

What is an aquifer? An underground lake? A water-bearing layer of the earth? An underground stream? Or something else?

21%	Underground Lake
35%	Water-bearing Layer
15%	Underground Stream
8%	Other
20%	Not Sure

4	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 4%

How does groundwater get into the ground? From rain falling on the land? The flow of streams? Through storm drains? Through irrigation water moving through the ground? Water sinking through soil layers? All of these ways? Or none of these ways?

11% Rain Falling
5% Flow Of Streams
0% Storm Drains
3% Irrigation Water
13% Soil Layers
62% All Of These
2% None Of These
5% Not Sure

5	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 3.7%

What is a watershed? A building along a waterway? The land where all the water falls and flows in a given area? An instrument to measure weather patterns? Or something else?

7% Building Along a Waterway
70% Land Where Water Falls/flows
4% Instrument To Measure Weather Patterns
8% Other
11% Not Sure

6	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 4.1%

Which of the following would you say is your primary or closest waterway? The Sacramento River? The Feather River? Big Chico Creek? Little Chico Creek? Deer Creek? Lake Oroville? Clear Creak? Dry Creek? Gold Run Creek? Cottonwood Creek? The Cherokee Canal? Butte Creek? Or Mud Creek?

9% Sacramento River
36% Feather River
18% Big Chico Creek
8% Little Chico Creek
1% Deer Creek
15% Lake Oroville
0% Clear Creak
1% Dry Creek
0% Gold Run Creek
0% Cottonwood Creek
0% The Cherokee Canal
7% Butte Creek
2% Mud Creek
3% Not Sure

7	Asked of 600 Adults

Margin of Sampling Error for this question = ± 4.1%

Are you aware of any practices that can help protect watersheds?

49% Yes
45% No
6% Not Sure

8 Asked of 600 Adults

Margin of Sampling Error for this question = ± 4.1%

Which one of the following best describes how you would define the term "watershed health?" That your local waterway has clear or fairly clear water? Wildlife activity at your local waterway? Plenty of woody debris in your local creeks? Fish in your local waterway? Only using biodegradable soaps around water? Not seeing trash at your local waterway? Lots of native vegetation growing along your local waterway? Or some other way?

34% Clear Or Fairly Clear Water
15% Wildlife Activity
3% Woody Debris In Creeks
12% Fish In Waterway
3% Using Biodegradable Soaps
3% Not Seeing Trash
10% Native Vegetation Growing
6% Other
13% Not Sure

9 Asked of 600 Adults

Margin of Sampling Error for this question = ± 4.1%

Which of the following best describes how you learned about watershed health? From TV? The radio? The local newspaper? By attending a workshop? From information a child brought home from school? Or some other way?

13% TV
4% Radio
11% Newspaper
2% Workshop
7% Info From School
46% Other
16% Not Sure

10 Asked of 600 Adults

Margin of Sampling Error for this question = ± 3.6%

Which of the following has an impact on watershed health? Wildfires? Erosion? Industries discharging waste into waterways? Runoff from roads and parking lots? Runoff from farms? Runoff from construction sites? The use of pesticides and fertilizers? Development? All of the above? Or none of the above?

4%	Wildfires
4%	Erosion
6%	Industries Discharging
1%	Runoff From Roads
1%	Runoff From Farms
0%	Runoff From Construction Sites
0%	Pesticides And Fertilizers
4%	Development
74%	All
1%	None
5%	Not Sure

11	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 3.7%

If your home is on ...

71%	Less Than One Acre
18%	1 To 10 Acres
8%	10 To 50 Acres
1%	More Than 50 Acres
2%	Not Sure

12	Asked of 54 who have at least 10 acres
	Margin of Sampling Error for this question = ± 13.6%

How do you mostly use your land? Farming row crops? An orchard? Ranching? A small family ranchette? Forestry or silvaculture? Or some other way?

0%	Farming Row Crops
32%	An Orchard
10%	Ranching
19%	Family Ranchette
3%	Forestry Or Silvaculture
34%	Other
2%	Not Sure

13	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 4.1%

Do you know what a conservation easement is?

40% Yes
56% No
4% Not Sure

14	Asked of 243 who know what conservation easements are
	Margin of Sampling Error for this question = ± 5.3%

Do you think conservation easements are? Or are not? Important tools for maintaining watershed health?

79% Are
8% Are Not
13% Not Sure

Geography Surveyed: Butte County
Data Collected: 01/12/2010 - 01/16/2010

1	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 4.1%

Does the water supply in the home where you live come from surface water? From groundwater? Or are you not sure?

23% Surface Water
46% Groundwater
31% Not Sure

2	Asked of 462 whose supply comes from groundwater or who are not sure
	Margin of Sampling Error for this question = ± 4%

Do you have your own well?

21% Yes
76% No
3% Not Sure

3	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 4.1%

What is an aquifer? An underground lake? A water-bearing layer of the earth? An underground stream? Or something else?

24% Underground Lake
35% Water-bearing Layer
17% Underground Stream
8% Other
16% Not Sure

4	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 3.9%

How does groundwater get into the ground? From rain falling on the land? The flow of streams? Through storm drains? Through irrigation water moving through the ground? Water sinking through soil layers? All of these ways? Or none of these ways?

13% Rain Falling

4% Flow Of Streams
0% Storm Drains
3% Irrigation Water
11% Soil Layers
64% All Of These
3% None Of These
2% Not Sure

5	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 3.6%

What is a watershed? A building along a waterway? The land where all the water falls and flows in a given area? An instrument to measure weather patterns? Or something else?

8% Building Along a Waterway
73% Land Where Water Falls/flows
5% Instrument To Measure Weather Patterns
7% Other
8% Not Sure

6	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 4.1%

Which of the following would you say is your primary or closest waterway? The Sacramento River? The Feather River? Big Chico Creek? Little Chico Creek? Deer Creek? Lake Oroville? Clear Creak? Dry Creek? Gold Run Creek? Cottonwood Creek? The Cherokee Canal? Butte Creek? Or Mud Creek?

12% Sacramento River
34% Feather River
17% Big Chico Creek
8% Little Chico Creek
0% Deer Creek
15% Lake Oroville
0% Clear Creak
1% Dry Creek
1% Gold Run Creek
0% Cottonwood Creek
1% The Cherokee Canal
6% Butte Creek
2% Mud Creek
3% Not Sure

7	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 4.1%

Are you aware of any practices that can help protect watersheds?

56% Yes
39% No
5% Not Sure

8	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 4.1%

Which one of the following best describes how you would define the term "watershed health?" That your local waterway has clear or fairly clear water? Wildlife activity at your local waterway? Plenty of woody debris in your local creeks? Fish in your local waterway? Only using biodegradable soaps around water? Not seeing trash at your local waterway? Lots of native vegetation growing along your local waterway? Or some other way?

36% Clear Or Fairly Clear Water
15% Wildlife Activity
3% Woody Debris In Creeks
13% Fish In Waterway
3% Using Biodegradable Soaps
3% Not Seeing Trash
8% Native Vegetation Growing
6% Other
13% Not Sure

9	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 4.1%

Which of the following best describes how you learned about watershed health? From TV? The radio? The local newspaper? By attending a workshop? From information a child brought home from school? Or some other way?

21% TV
3% Radio
10% Newspaper
6% Workshop
4% Info From School
44% Other
11% Not Sure

10	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 3.5%

Which of the following has an impact on watershed health? Wildfires? Erosion? Industries discharging waste into waterways? Runoff from roads and parking lots? Runoff from farms? Runoff

from construction sites? The use of pesticides and fertilizers? Development? All of the above? Or none of the above?

4%	Wildfires
4%	Erosion
4%	Industries Discharging
1%	Runoff From Roads
0%	Runoff From Farms
0%	Runoff From Construction Sites
1%	Pesticides And Fertilizers
4%	Development
75%	All
3%	None
3%	Not Sure

11	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 3.7%

If your home is on ...

72%	Less Than One Acre
14%	1 To 10 Acres
9%	10 To 50 Acres
1%	More Than 50 Acres
3%	Not Sure

12	Asked of 62 who have at least 10 acres
	Margin of Sampling Error for this question = ± 12.7%

How do you mostly use your land? Farming row crops? An orchard? Ranching? A small family ranchette? Forestry or silvaculture? Or some other way?

3%	Farming Row Crops
10%	An Orchard
8%	Ranching
38%	Family Ranchette
10%	Forestry Or Silvaculture
26%	Other
6%	Not Sure

13	Asked of 600 Adults
	Margin of Sampling Error for this question = ± 4.1%

Do you know what a conservation easement is?

47% Yes
50% No
3% Not Sure

14	Asked of 283 who know what conservation easements are
	Margin of Sampling Error for this question = ± 4.8%

Do you think conservation easements are? Or are not? Important tools for maintaining watershed health?

79% Are
13% Are Not
8% Not Sure