

XVI. Wells National Estuarine Survey & Results

- Choices for Our Land and Water Survey 2014
- Choices for Our Land and Water Survey Results by Clark University, 2014
- Sustaining Coastal Landscapes and Community Benefits – Final Report, 2015

CHOICES FOR OUR LAND AND WATER



A Survey of Kennebunk, Sanford and Wells Residents
Sponsored by the Wells National Estuarine Research Reserve and Clark University

LAND AND WATER IN SOUTHERN MAINE

What happens on land in Maine affects its rivers and streams. **The area where land meets the water is called riparian land.** Riparian land within **300 feet** of the water is considered most important by scientists.



Natural Riparian Land



Partially Cleared Riparian Land

Natural riparian land in southern Maine is forested, with trees and low-level plants. This land provides a number of services. For example, riparian land:

- **Filters out pollutants** before they reach the water
- **Prevents erosion** and collapse of river banks
- **Prevents flooding** of homes and property by absorbing flood waters
- **Improves habitat** for fish, birds and other wildlife
- **Provides natural scenery** for residents and visitors.

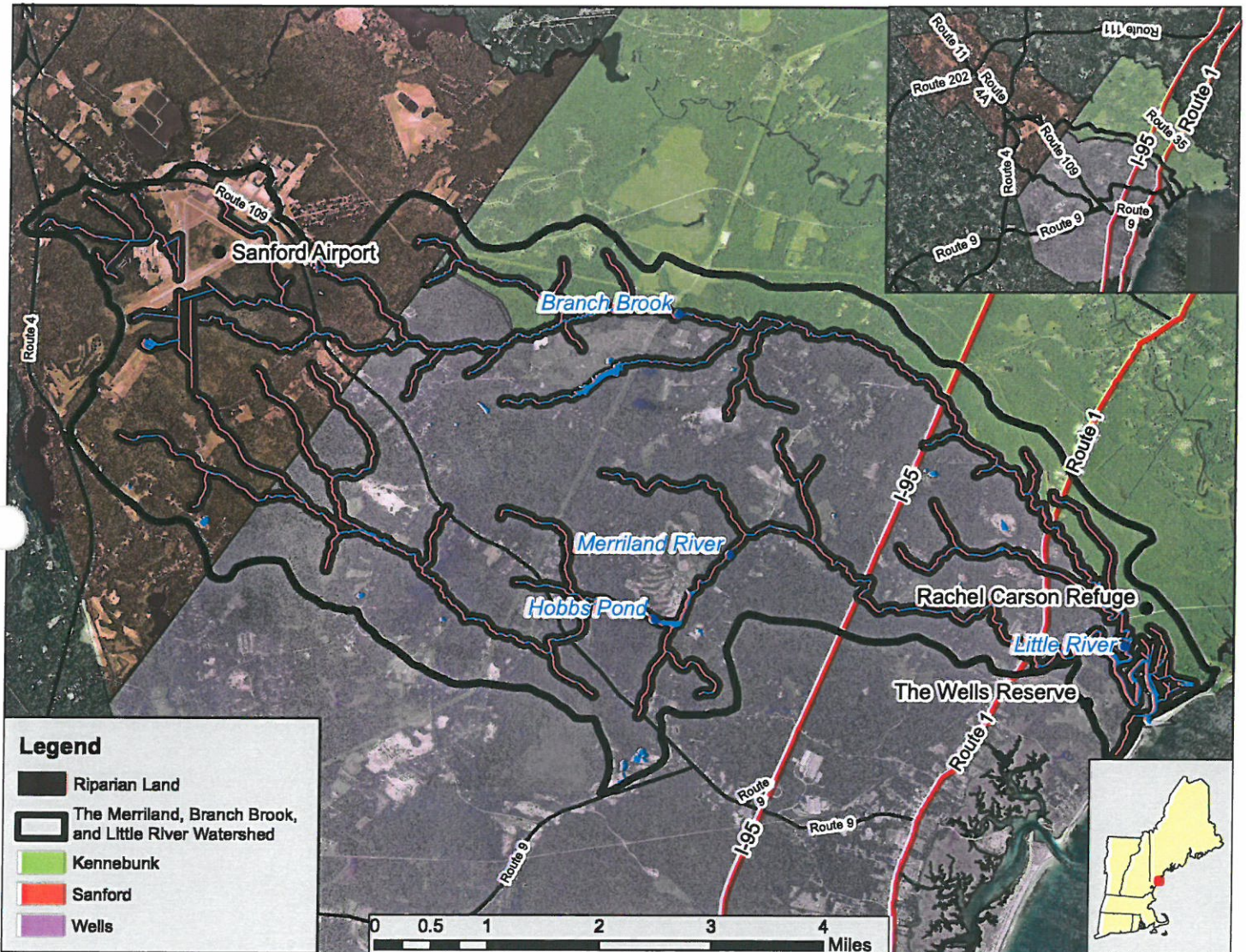
When this land is cleared or developed, many of these services decline.

This survey asks for your opinions about how riparian land is managed in areas surrounding the Merriland, Branch Brook, and Little Rivers in your area.

Your answers will help public officials and nonprofit organizations decide how to manage this land.

RIPARIAN LAND IN KENNEBUNK, SANFORD AND WELLS

The map below shows the area addressed by this survey. This includes all land that drains into the **Merriland, Branch Brook, and Little Rivers** within Kennebunk, Sanford and Wells.

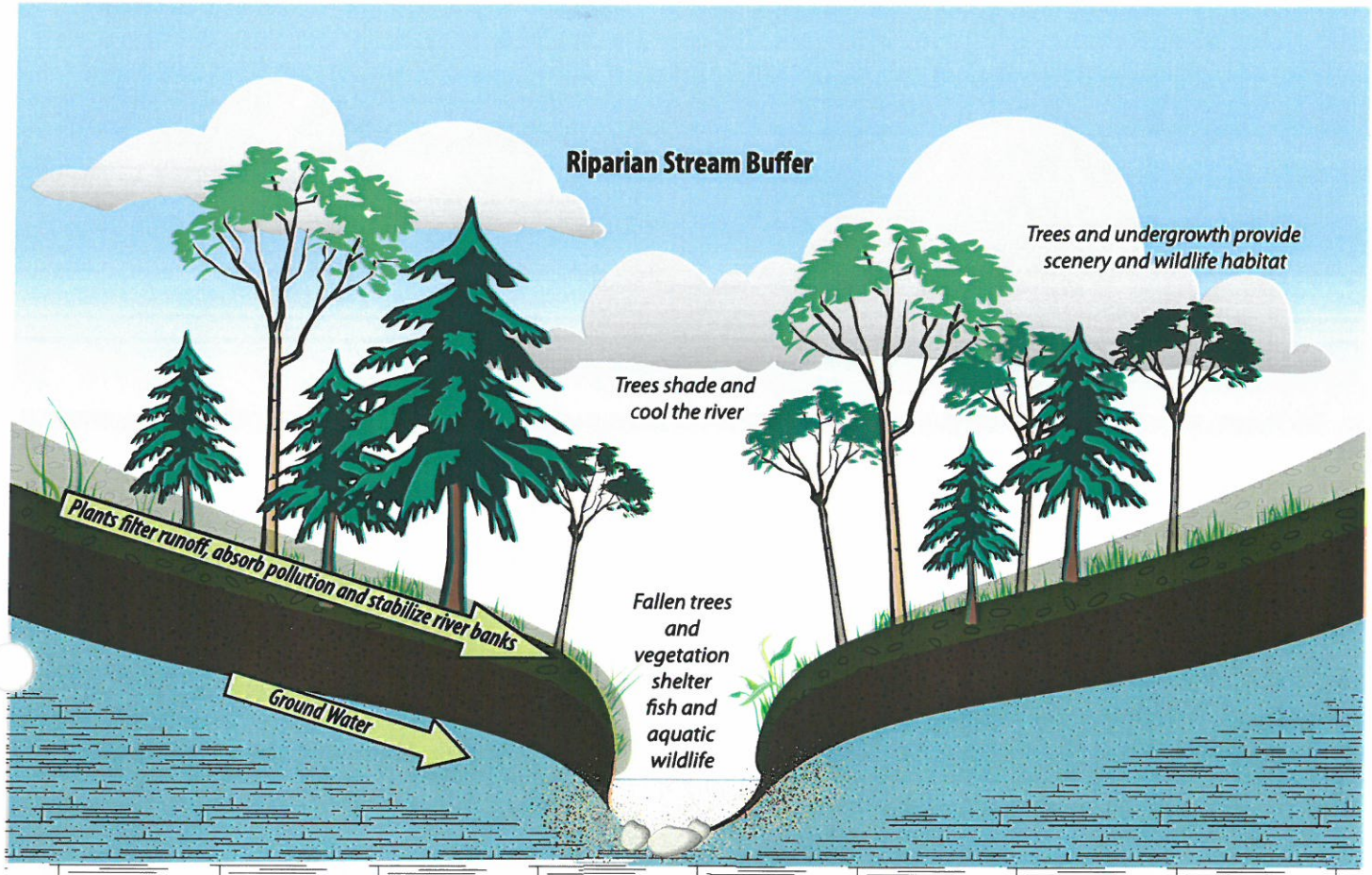


The Merriland, Branch Brook, and Little River (MBLR) Watershed

Across this area there are about **4,700 acres** of land within 300 feet of a river or stream. This area is shown as Riparian Land on the map. **4,300 acres** of this riparian land are covered by trees and natural vegetation. The remaining 400 acres have been developed or cleared.

WHAT RIPARIAN LAND DOES

The figure below illustrates some of the main natural services provided by riparian land, such as absorbing pollution, improving wildlife habitat and providing natural scenery.



Natural Services of Riparian Land

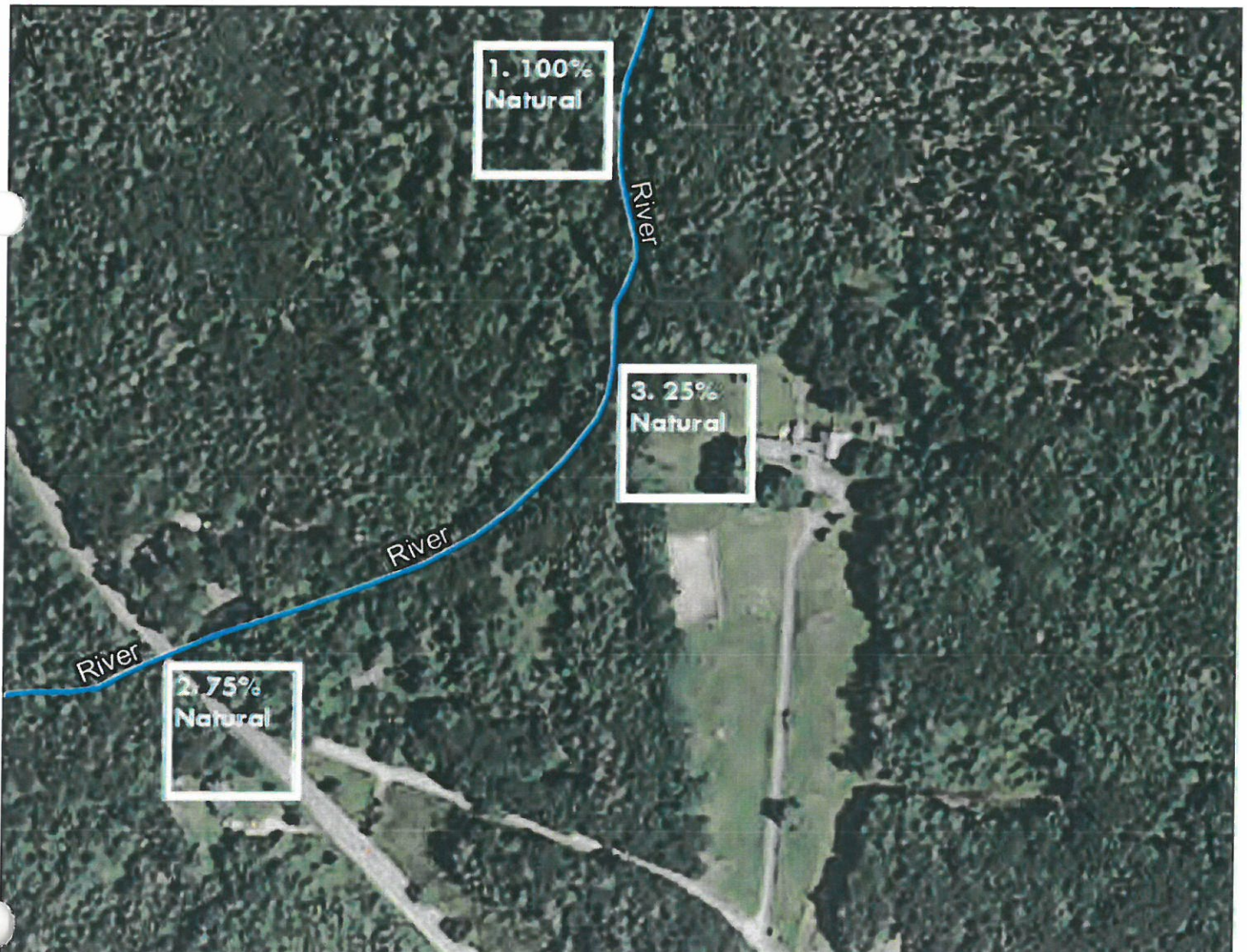
Development in Kennebunk, Sanford, and Wells is removing trees and vegetation on more riparian land each year. This is affecting scenery, river ecosystems, fish, and water quality. Because of this, some people have called for additional restrictions on clearing and development of this land. At the same time, other people do not want the development rights of private landowners to be further restricted.

HOW DEVELOPMENT IS AFFECTING RIPARIAN LAND

Development and clearing is already restricted on riparian land in Maine, but some occurs anyway. Development and clearing often happens when people want to expand lawns, improve their view of the river, or add a dock.

Riparian land development is occurring at a rate of about **5% every 10 years**. Already, nearly 10% of riparian land has been developed.

The image below shows the difference between natural and developed riparian land. In square 1, **100%** of riparian land is covered by natural vegetation. In squares 2 and 3, approximately **75%** and **25%** of the land, respectively, is covered by natural vegetation. The rest has been developed or cleared.



PROTECTION RIPARIAN LAND

Public and private agencies in Maine are considering options to protect natural riparian land in Kennebunk, Sanford and Wells. These include:

- **Purchase and protection** of undeveloped riparian land by land trusts, environmental organizations or government agencies.
- **Restoration** of riparian land that has already been developed or cleared. These activities are supported by public and private organizations.
- **Increased restrictions on development** near rivers. Development and clearing is now restricted within a minimum distance of 100 feet from rivers and 25 feet from streams. The size of this restricted area could be increased.
- **Increased enforcement of existing restrictions.** Sometimes development on riparian land occurs in ways that violate state and local regulations. Enforcement of existing regulations could be enhanced, for example by allowing more inspections.

All of the options to protect natural riparian land require tradeoffs. For example, some options are costly, and others can restrict how people use private land.

Question 1. When considering options to protect natural riparian land, how important to you is each of the following? Check one box for each.

	Not at All Important		Moderately Important		Very Important
a. Government respects the right of private landowners to use and develop their land	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
b. Water quality is protected in lakes, rivers and streams	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
c. The local environment is protected	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
d. Taxes and fees paid by my household do not increase	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
e. Existing regulations are enforced fairly and effectively	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
f. Existing uses of private land are grandfathered, so that they are not subject to new restrictions	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.

TRADEOFFS PROTECTING RIPARIAN LAND

The following pages will allow you to vote for or against different options that might be used to protect natural riparian land in Kennebunk, Sanford and Wells. Your answers will help public officials and nonprofit organizations understand the tradeoffs that are most acceptable to you.

Each question will ask you to compare different future scenarios, each with different effects on:



Natural Riparian Land (how much of it remains in natural condition)



River Ecology (the ecological condition of local rivers)



Recreational Fish (the number of recreational fish living in area rivers)



Safe Swimming (the percentage of days that area beaches are safe to swim)



Development Setback (the width of riparian area in which development is restricted)



Enforcement (whether existing enforcement and land inspections are increased)



Cost to your household each year (taxes and fees to pay for new programs)

Without any action, natural conditions will decline. If sufficient actions are taken to protect the natural condition of riparian land, these conditions will stay the same or improve.

Question 2. In general, do you support greater use of development setbacks and land inspections to limit future development on riparian land?








1. Yes 2. No 3. I'm not sure

Question 3. In general, do you support voluntary partnerships between government and private landowners to restore natural riparian land?

1. Yes 2. No 3. I'm not sure

COMPARING PROTECTION OPTIONS








The upcoming questions will ask you to compare different ways of protecting riparian land in Kennebunk, Sanford and Wells, and vote for the ones you prefer. You may also vote to reject the proposed programs and retain the status quo. **Effects of each option will be described by the following effects, as estimated by scientists:**

Effect	What it Means
 <p>Natural Riparian Land</p>	<p>The amount of riparian land covered by natural vegetation. Currently about 91% of the land is in natural condition. With no action 85% of riparian land in the area (4000 acres) will remain in natural condition in 5-10 years.</p>
 <p>River Ecology</p>	<p>Average ecological condition of area rivers, measured by the diversity of small organisms (dragonflies, mayflies, etc.) that live there. A score of 100% is the best possible condition in the area. A score of 0% means nothing lives in the water. With no action, the ecological condition in area rivers will be 55% in 5-10 years. The score today is about 60%.</p>
 <p>Recreational Fish</p>	<p>The number of recreational fish in area rivers, measured by scientific sampling of brook trout. A score of 100% would mean that area rivers contain the maximum number of trout possible (30 trout per 1000 sq. feet). Today there are about 19 trout per 1000 sq. feet. With no action, scientists predict there will be an average of 17 trout per 1000 sq. feet (55% of the most possible) in 5-10 years.</p>
 <p>Safe Swimming</p>	<p>The percentage of days in which government tests show that area beaches (Laudholm, Drakes Island, Crescent Surf, and Parson) are safe for swimming. 100% means that all tests show water safe for swimming. With no action, scientists predict 85% of tests will show water safe for swimming in 5-10 years.</p>
 <p>Development Setback</p>	<p>The minimum width of the riparian area where development is restricted. Currently development and clearing is restricted within a minimum distance of 100 feet from rivers and 25 feet from streams. This distance is larger in some areas and for some types of development. Existing (legal) development would be grandfathered if setbacks change.</p>
 <p>Enforcement</p>	<p>Whether enforcement is increased to prevent illegal development or clearing on riparian land. This could include inspections on private land if violations are suspected. Currently, inspections can only occur when a violation has been reported or as part of permitting.</p>
 <p>Cost to your Household per Year</p>	<p>How much the policy will cost your household in unavoidable annual taxes and fees. These are guaranteed to only be spent on the protection option that is indicated.</p>

YOU WILL BE ASKED TO VOTE

After considering the current situation and possible protection effects and methods, which do you prefer? You will be given choices and asked to vote for the option you prefer by checking the appropriate box. Questions will look similar to the sample below.

SAMPLE QUESTION:

Method or Effect of Protection	In 5-10 years under the Current Situation	In 5-10 years under Option A	In 5-10 years under Option B
 Riparian Land Condition	85% 4000 out of 4700 riparian acres covered by natural vegetation	87% 4100 out of 4700 riparian acres covered by natural vegetation	95% 4500 out of 4700 riparian acres covered by natural vegetation
 River Ecology	55% of best possible (100%) ecological condition	85% of best possible (100%) ecological condition	85% of best possible (100%) ecological condition
 Recreational Fish	55% 17 out of 30 possible fish per 1000 sq. feet	75% 23 out of 30 possible fish per 1000 sq. feet	55% 17 out of 30 possible fish per 1000 sq. feet
 Safe Swimming	85% of beach tests meet safe swimming guidelines	95% of beach tests meet safe swimming guidelines	85% of beach tests meet safe swimming guidelines
 Development Setback	100 feet required between development and rivers; 25 feet for streams	150 feet required between development and rivers; 75 feet for streams	100 feet required between development and rivers; 25 feet for streams
 Enforcement	No Change in enforcement and inspections	No Change in enforcement and inspections	Increased enforcement and inspections
 Cost to your Household per Year	\$0 Increase in Annual Taxes or Fees	\$45 Increase in Annual Taxes or Fees	\$5 Increase in Annual Taxes or Fees
HOW WOULD YOU VOTE? (CHOOSE ONLY ONE) I vote for	<input checked="" type="checkbox"/> NO NEW PROTECTION	<input checked="" type="checkbox"/> I vote for OPTION A	<input checked="" type="checkbox"/> I vote for OPTION B

If you prefer
No New Action
Check Here

If you prefer
Option A
Check Here

If you prefer
Option B
Check Here








AS YOU VOTE, REMEMBER THESE IMPORTANT DETAILS

- There are 3 voting questions, each on a different page. Do not add up or compare options from different pages. Only choose among options on that page.
- There are different ways to protect and restore the condition of riparian land. Costs and effects depend on many factors. Policies that affect a larger area will not always have larger effects or cost more.
- Review each question carefully. The results of this survey will be given to town planners in Kennebunk, Sanford, and Wells to help determine future actions.
- Costs to your household would range from \$0 to \$60 per year, depending on the option. Assume that all funds are legally guaranteed to be used for the described programs.
- The “Current Situation” shows future condition in 5-10 years with no change in current policies.
- The map on page 2 has an area marked “Riparian Land” where most changes would occur.
- When voting, assume that the option receiving the most votes will be enacted.
- All plans include a combination of activities such as restoration and additional protection of riparian land.

QUESTION 4

OPTION A and **OPTION B** are possible protection options for the area surrounding the Merriland, Branch Brook, and Little River. The current situation is the status quo with **NO NEW PROTECTION**.

Given a choice between the three, how would you vote?

Method or Effect of Protection	In 5-10 years under the Current Situation	In 5-10 years under Option A	In 5-10 years under Option B
 Riparian Land Condition	85% 4000 out of 4700 riparian acres covered by natural vegetation	87% 4100 out of 4700 riparian acres covered by natural vegetation	95% 4500 out of 4700 riparian acres covered by natural vegetation
 River Ecology	55% of best possible (100%) ecological condition	85% of best possible (100%) ecological condition	85% of best possible (100%) ecological condition
 Recreational Fish	55% 17 out of 30 possible fish per 1000 sq. feet	75% 23 out of 30 possible fish per 1000 sq. feet	55% 17 out of 30 possible fish per 1000 sq. feet
 Safe Swimming	85% of beach tests meet safe swimming guidelines	95% of beach tests meet safe swimming guidelines	85% of beach tests meet safe swimming guidelines
 Development Setback	100 feet required between development and rivers; 25 feet for streams	150 feet required between development and rivers; 75 feet for streams	100 feet required between development and rivers; 25 feet for streams
 Enforcement	No Change in enforcement and inspections	No Change in enforcement and inspections	Increased enforcement and inspections
 Cost to your Household per Year	\$0 Increase in Annual Taxes or Fees	\$45 Increase in Annual Taxes or Fees	\$5 Increase in Annual Taxes or Fees
HOW WOULD YOU VOTE? (CHOOSE ONLY ONE) I vote for	<input type="checkbox"/> NO NEW PROTECTION	<input type="checkbox"/> I vote for OPTION A	<input type="checkbox"/> I vote for OPTION B

As you consider the following question please remember

Questions 5 and 6 each present a new set of options for the Merriland, Branch Brook, and Little River Watersheds.








- These options use different methods or affect different areas.
- Each question is a separate vote. Questions 5 and 6 cannot be directly compared to each other or to Question 4.
- Do not add up protection effects, methods or costs across different questions.
- Costs and effects depend on many factors. Protecting a larger area does not necessarily mean that all effects will improve or that costs will be higher.



QUESTION 5

OPTION A and **OPTION B** are possible protection options for the area surrounding the Merriland, Branch Brook, and Little River. The current situation is the status quo with **NO NEW PROTECTION**.








Given a choice between the three, how would you vote?

Method or Effect of Protection	In 5-10 years under the Current Situation	In 5-10 years under Option A	In 5-10 years under Option B
 Riparian Land Condition	85% 4000 out of 4700 riparian acres covered by natural vegetation	87% 4100 out of 4700 riparian acres covered by natural vegetation	90% 4200 out of 4700 riparian acres covered by natural vegetation
 River Ecology	55% of best possible (100%) ecological condition	75% of best possible (100%) ecological condition	75% of best possible (100%) ecological condition
 Recreational Fish	55% 17 out of 30 possible fish per 1000 sq. feet	65% 20 out of 30 possible fish per 1000 sq. feet	65% 20 out of 30 possible fish per 1000 sq. feet
 Safe Swimming	85% of beach tests meet safe swimming guidelines	90% of beach tests meet safe swimming guidelines	90% of beach tests meet safe swimming guidelines
 Development Setback	100 feet required between development and rivers; 25 feet for streams	100 feet required between development and rivers; 25 feet for streams	200 feet required between development and rivers; 125 feet for streams
 Enforcement	No Change in enforcement and inspections	No Change in enforcement and inspections	No Change in enforcement and inspections
 Cost to your Household per Year	\$0 Increase in Annual Taxes or Fees	\$45 Increase in Annual Taxes or Fees	\$30 Increase in Annual Taxes or Fees
HOW WOULD YOU VOTE? (CHOOSE ONLY ONE) I vote for	<input type="checkbox"/> NO NEW PROTECTION	<input type="checkbox"/> I vote for OPTION A	<input type="checkbox"/> I vote for OPTION B

QUESTION 6

OPTION A and **OPTION B** are possible protection options for the area surrounding the Merriland, Branch Brook, and Little River. The current situation is the status quo with **NO NEW PROTECTION**.

Given a choice between the three, how would you vote?

Method or Effect of Protection	In 5-10 years under the Current Situation	In 5-10 years under Option A	In 5-10 years under Option B
 Riparian Land Condition	85% 4000 out of 4700 riparian acres covered by natural vegetation	87% 4100 out of 4700 riparian acres covered by natural vegetation	87% 4100 out of 4700 riparian acres covered by natural vegetation
 River Ecology	55% of best possible (100%) ecological condition	85% of best possible (100%) ecological condition	55% of best possible (100%) ecological condition
 Recreational Fish	55% 17 out of 30 possible fish per 1000 sq. feet	65% 20 out of 30 possible fish per 1000 sq. feet	55% 17 out of 30 possible fish per 1000 sq. feet
 Safe Swimming	85% of beach tests meet safe swimming guidelines	90% of beach tests meet safe swimming guidelines	95% of beach tests meet safe swimming guidelines
 Development Setback	100 feet required between development and rivers; 25 feet for streams	150 feet required between development and rivers; 75 feet for streams	200 feet required between development and rivers; 125 feet for streams
 Enforcement	No Change in enforcement and inspections	No Change in enforcement and inspections	No Change in enforcement and inspections
 Cost to your Household per Year	\$0 Increase in Annual Taxes or Fees	\$30 Increase in Annual Taxes or Fees	\$30 Increase in Annual Taxes or Fees
HOW WOULD YOU VOTE? (CHOOSE ONLY ONE) I vote for	<input type="checkbox"/> NO NEW PROTECTION	<input type="checkbox"/> I vote for OPTION A	<input type="checkbox"/> I vote for OPTION B

**Question 7. Indicate how strongly you agree or disagree with the following statements.
Check one box for each.**

	Strongly Disagree		Neutral		Strongly Agree
a. This survey provided enough information for me to make informed choices.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
b. I feel confident about my answers.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
c. Information in the survey was easy to understand.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
d. Information in the survey was fair and balanced.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
e. Questions were easy to answer.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
f. I would vote in the same way on a public vote or referendum.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
g. I believe that there are too many government restrictions on the use and development of private land.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
h. I believe that there are too few government restrictions on the use and development of private land.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
i. Scientific predictions of future conditions are always highly uncertain.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.

Question 8. How many times did you participate in the following during the last year? Please include activities ONLY IN MAINE. For trips longer than one day, count each day separately. Check one box for each.

	The number of times you did the activity in the past year				
	0	1-5	6-10	11-15	16+
a. Recreational Fishing	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
b. Boating, canoeing, or kayaking	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
c. Watching/photographing wildlife	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
d. Swimming or sunbathing	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
e. Picnicking	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
f. Hiking or bicycling	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.

Question 9. Do you own land on a river or stream that might be affected by changes in development setbacks or inspections?

1. **Yes** 2. **No** 3. **I'm not sure**

Question 10. How do you feel about the protection of river ecology in your area? Check the box that most closely reflects your values.

1. Protection of river ecology is important to me **mostly for its own sake**, not because of other environmental effects that might result.
2. Protection of river ecology is important to me **both for its own sake, and because of other environmental effects** that might result.
3. Protection of river ecology is important to me **mostly because of other environmental effects** that might result. I do not care about river ecology for its own sake.
4. **Protection of river ecology is not important** to me for any reason.
5. Other (please explain):

Question 11. Indicate how strongly you agree or disagree with the following statements. Check one box for each.

	Strongly Disagree		Neutral		Strongly Agree
a. To maintain a high quality of life in Maine, it is important to balance development with preservation and conservation.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
b. I have heard of the Shoreland Protection Act.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
c. I understand the goals of the Shoreland Protection Act.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
d. There is sound scientific research that supports current zoning regulations on riparian land.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
e. I consider myself a custodian of the land.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
f. Regulations are needed to protect shoreland and clean water in York County.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
g. It is equally important to protect private property rights and clean water.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
h. The long-term protection of the environment is more important than the right of an individual property owner to develop his/her property.	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.

The following questions ensure that all groups are fairly represented.

All answers are confidential.

12. What is your gender? 1. Male 2. Female

13. What is your age? _____ years

14. What is the highest level of education you completed?

- | | |
|---|---|
| <input type="checkbox"/> 1. Less than High School | <input type="checkbox"/> 4. 2-year college degree |
| <input type="checkbox"/> 2. High School/GED | <input type="checkbox"/> 5. 4-year college degree |
| <input type="checkbox"/> 3. Some college | <input type="checkbox"/> 6. Graduate degree (MS, PhD, etc.) |

15. Do you live in the Merriland, Big Branch and Little River Watershed (see map on page 2)?

1. Yes 2. No 3. Not Sure

16. How long have you been a Maine resident? _____ years

17. Are you currently employed? 1. Yes 2. No

18. What category best describes your total household annual income?

- | | |
|--|--|
| <input type="checkbox"/> 1. Less than \$10,000 | <input type="checkbox"/> 5. \$60,000 to \$79,999 |
| <input type="checkbox"/> 2. \$10,000 to \$19,999 | <input type="checkbox"/> 6. \$80,000 to \$99,999 |
| <input type="checkbox"/> 3. \$20,000 to \$39,999 | <input type="checkbox"/> 7. \$100,000 to \$249,999 |
| <input type="checkbox"/> 4. \$40,000 to \$59,999 | <input type="checkbox"/> 8. \$250,000 or more |

19. Do you or anyone in your immediate household belong to any of the following? (Check all that apply)

1. Environmental organizations (Laudholm Trust, World Wildlife Fund, etc.)
2. Outdoor sporting or recreational fishing associations (Ducks Unlimited, Recreational Fishing Alliance, etc.)
3. Business-related organizations (chambers of commerce, etc.)

20. What is your zip code? _____

21. How many people live in your household? _____

COMMENTS

Please use the space below for any additional comments.

**Thank you for participating in this important survey!
Please mail it back to us in the postage-paid envelope.**

If you have questions about this project, please contact **Dr. Robert J. Johnston**
at Clark University (wells_survey@clarku.edu or (508) 751-4609).



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Choices for Our Land and Water

What do 1,000 + residents of Sanford, Wells and
Kennebunk think about buffers and what choices are
they willing to make to protect them?

Robert J. Johnston
Clark University

*The 5th Annual Solstice Summit at the Wells National Estuarine Research Reserve
Wells, MA. June 21, 2014*



Robert Solow – Nobel Prize Economist

- “...in the long run, the economics of natural resources and the environment is as important to our well-being as the economics of money and banking. Our national economic future depends on the way we use our energy sources, renewable and non-renewable; on the way we use our subsurface minerals, our forest our soil resources, our ocean fisheries; on the quality and quantity of water we can make available for household use; and on the quality of the air and what we do with toxic wastes.”

Economic Tradeoffs and Environmental Policy

- All environmental policy requires tradeoffs.
 - Different benefits and costs to different groups.
- Analysis of these tradeoffs is required because
 - We can't Do It All
 - We can't Do It All At Once
 - Some Things Conflict
 - Some Actions Are Not Worth It – But Which Ones?
- Preconceived notions about benefits and costs are often wrong.

How Economics Informs Policy

- Some of the Things Economists Provide
 - Model Economic Behavior
 - Cause and Effect
 - Prediction
 - Design Policies To Achieve Desired Outcomes
 - e.g., command and control vs. market-based policy
 - Welfare Economics
 - Comparing States of the World
 - Under what conditions is society better off?
 - What policies provide the most net benefit and to whom?

Market and Non-Market Values

- When evaluating policies, an economic benefit or value is something that makes at least one person better off.
- Values can be provided by market goods and by non-market environmental (or ecosystem) services.
 - Examples: The benefit I receive from catching a fish in a local river or benefit of clean water at a public beach.
- Money transactions are not required for economic values.
- A large proportion of the benefit from environmental policy is (often) in the form of non-market value.
 - But non-market values are more difficult to measure.

Project Goals (Economics)

- Evaluate tradeoffs that Kennebunk, Sanford and Wells residents are willing to make with regard to the protection of riparian buffers.
 - Which outcomes are most valued?
 - What are the economic benefits?
 - How do benefits differ across groups?
 - What other tradeoffs (e.g., development restrictions) do residents support?
 - What types of policies are most supported?

Project Methods

- Project coordinates ecological data (what outcomes are possible) with economic data (what outcomes are most valued).
- Data from large sample questionnaire: *Choices for Our Land and Water: A Survey of Kennebunk, Sanford and Wells Residents*
- Multiple types of questions used to analyze policy support and public values.

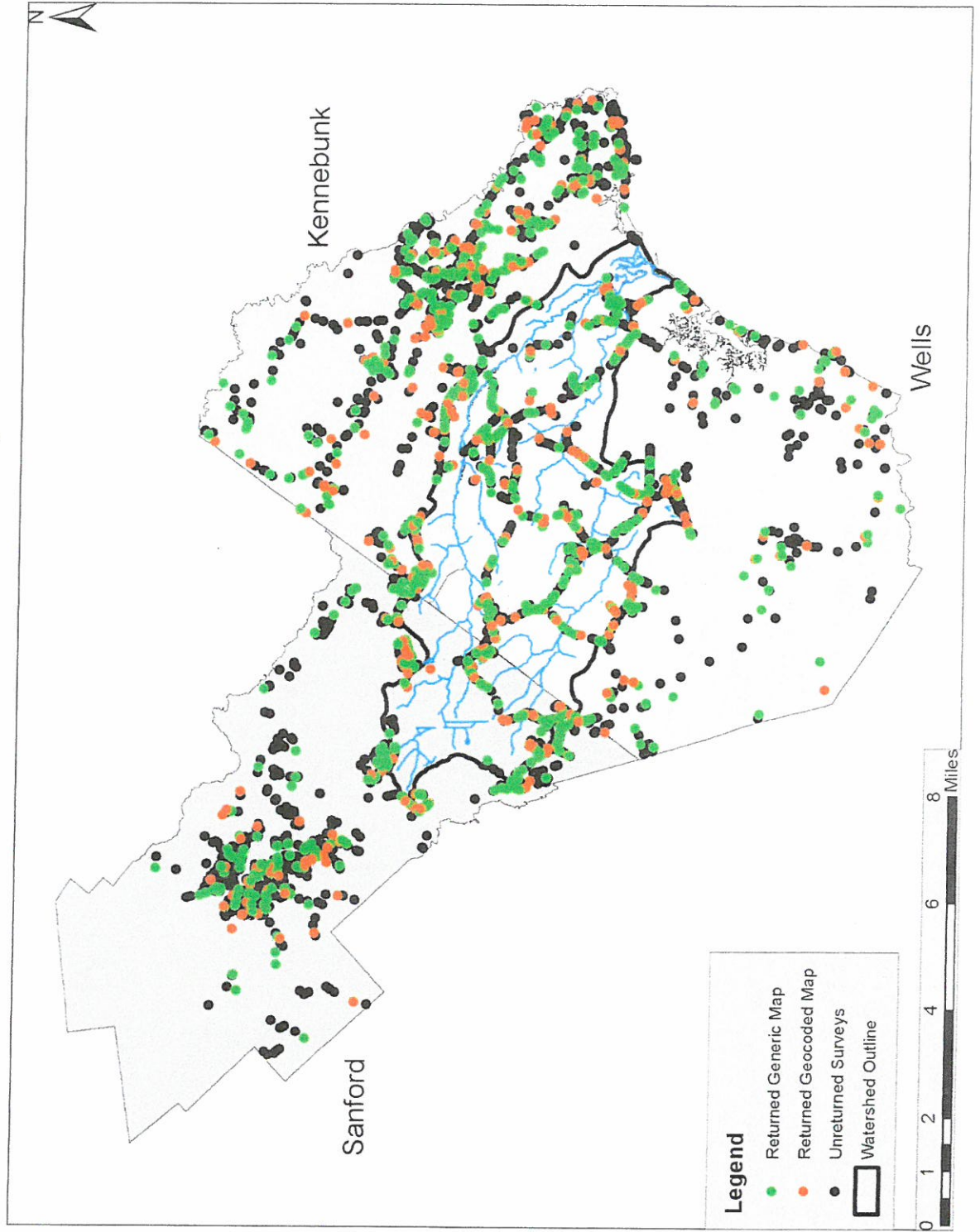
The Survey

- Survey developed over 3 years in an intensive process with project partners.
- 9 focus groups with residents used to develop and pretest the questionnaire.
- Input from scientists and stakeholders throughout the process.
- Survey implemented December 2013 – January 2014.
- Follow-up mailings and incentives to increase response rates.

The Survey

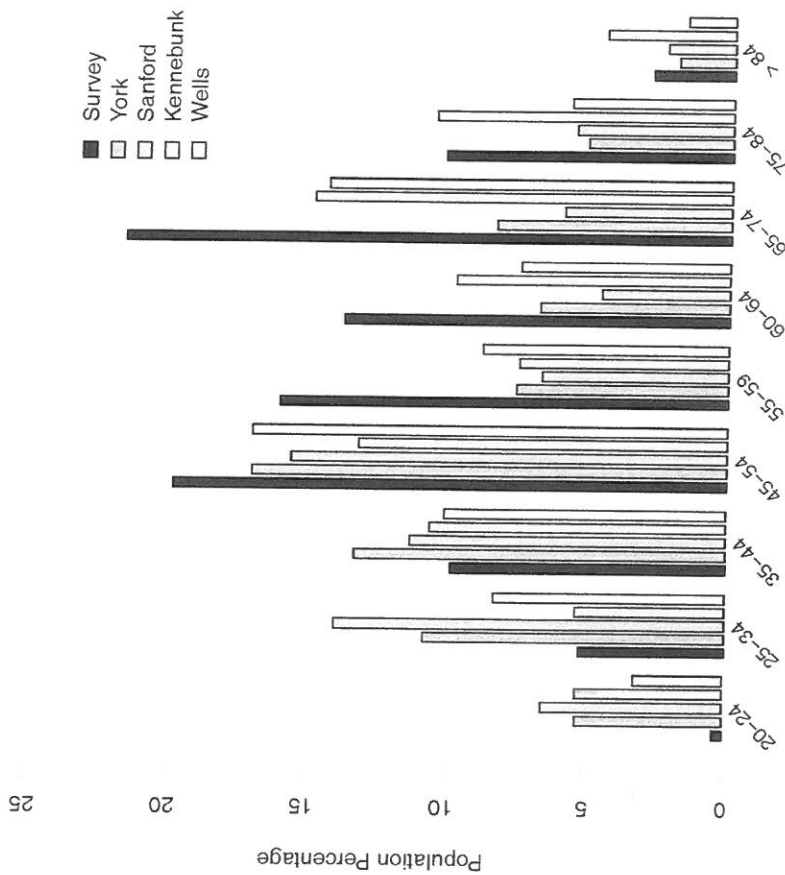
- 3816 surveys mailed to randomly selected residents of Kennebunk, Sanford and Wells.
 - Sampled all residents of Merriland, Branch Brook and Little River Watershed.
- Out of 3472 deliverable surveys, 1126 were returned for a response rate of 32.4%.
- Town response rates ranged from 27.2% (Sanford) to 35.1% (Wells).

Location of Responses

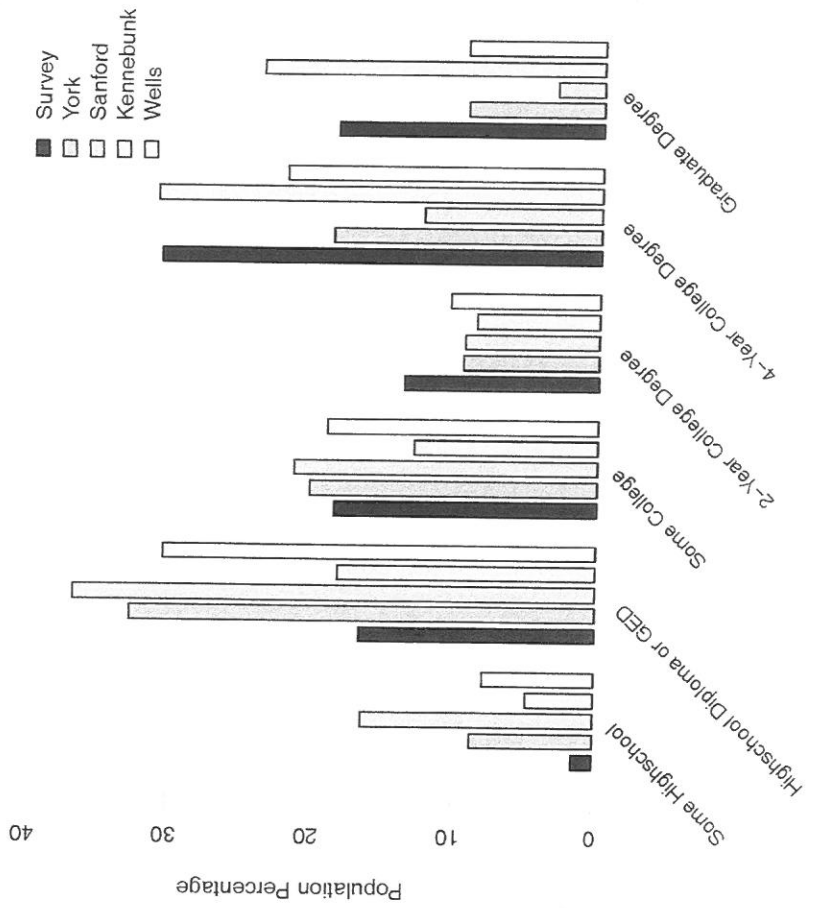


Who Responded?

Age Distribution Comparison



Education Distribution Comparison



What Is Important?

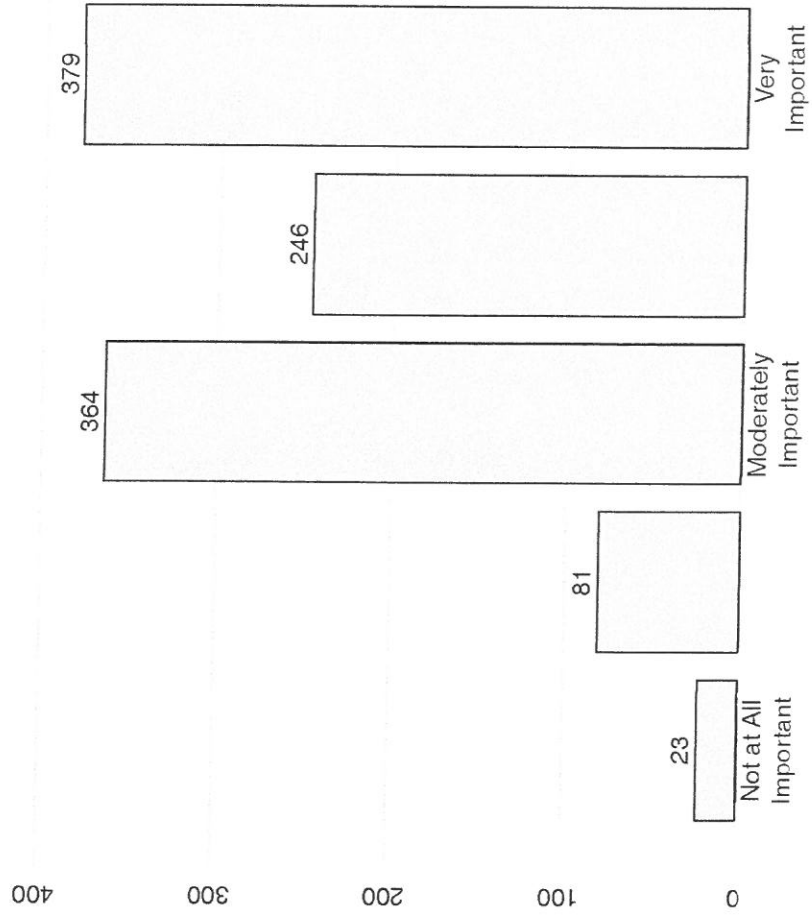
All of the options to protect natural riparian land require tradeoffs. For example, some options are costly, and others can restrict how people use private land.

Question 1. When considering options to protect natural riparian land, how important to you is each of the following? Check one box for each.

	Not at All Important	Moderately Important	Very Important		
a. Government respects the right of private landowners to use and develop their land	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
b. Water quality is protected in lakes, rivers and streams	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
c. The local environment is protected	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
d. Taxes and fees paid by my household do not increase	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
e. Existing regulations are enforced fairly and effectively	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.
f. Existing uses of private land are grandfathered, so that they are not subject to new restrictions	<input type="checkbox"/> 1.	<input type="checkbox"/> 2.	<input type="checkbox"/> 3.	<input type="checkbox"/> 4.	<input type="checkbox"/> 5.

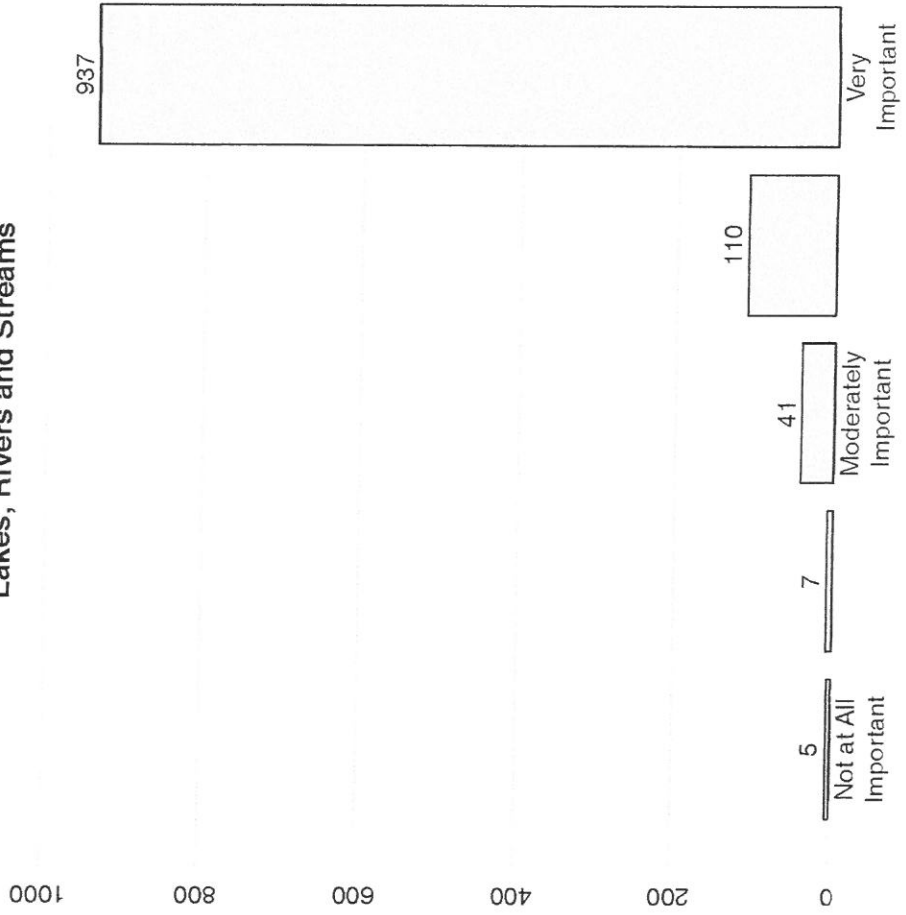
What is Important?

Government Respects the Right of Private Landowners to Use and Develop Their Land



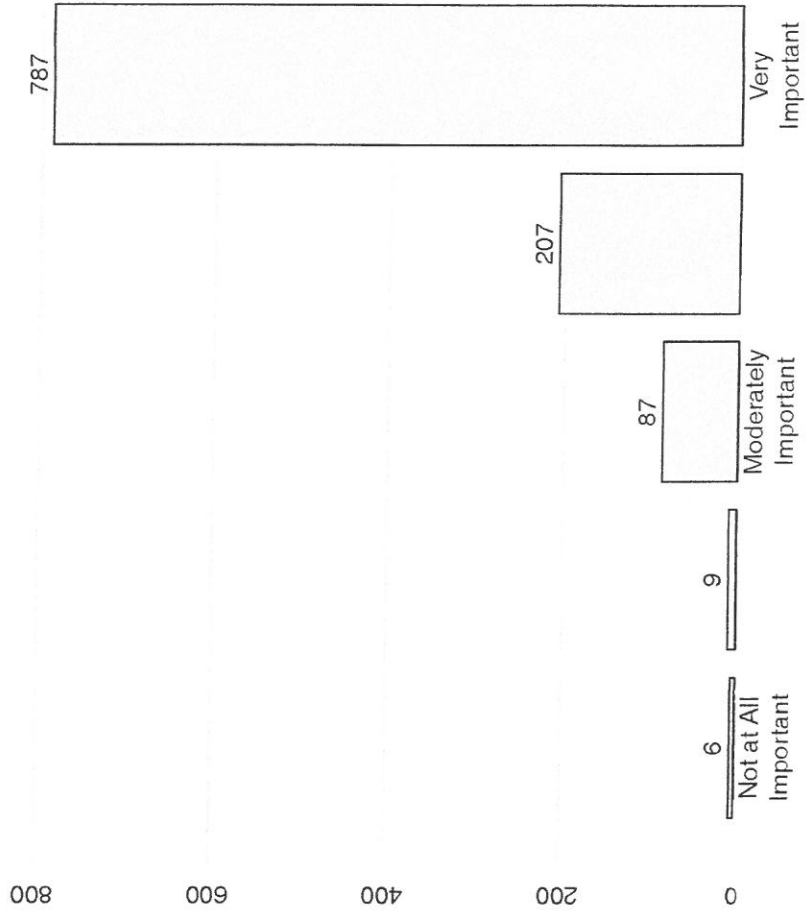
What Is Important?

Water Quality Is Protected in
Lakes, Rivers and Streams



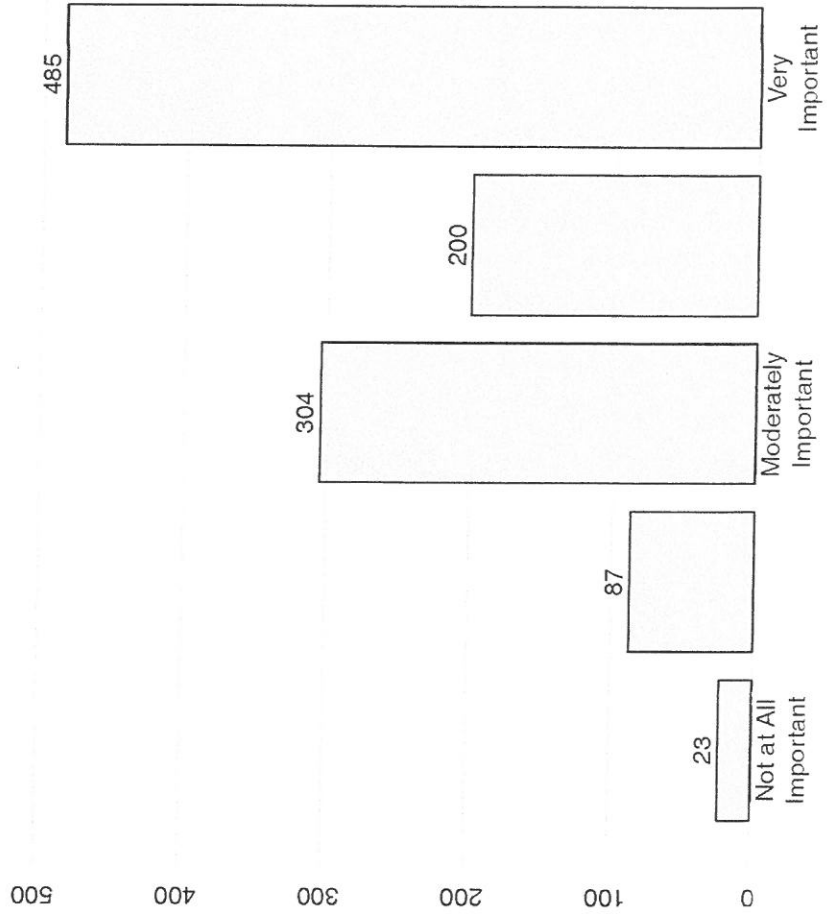
What Is Important?

The Local Environment Is Protected



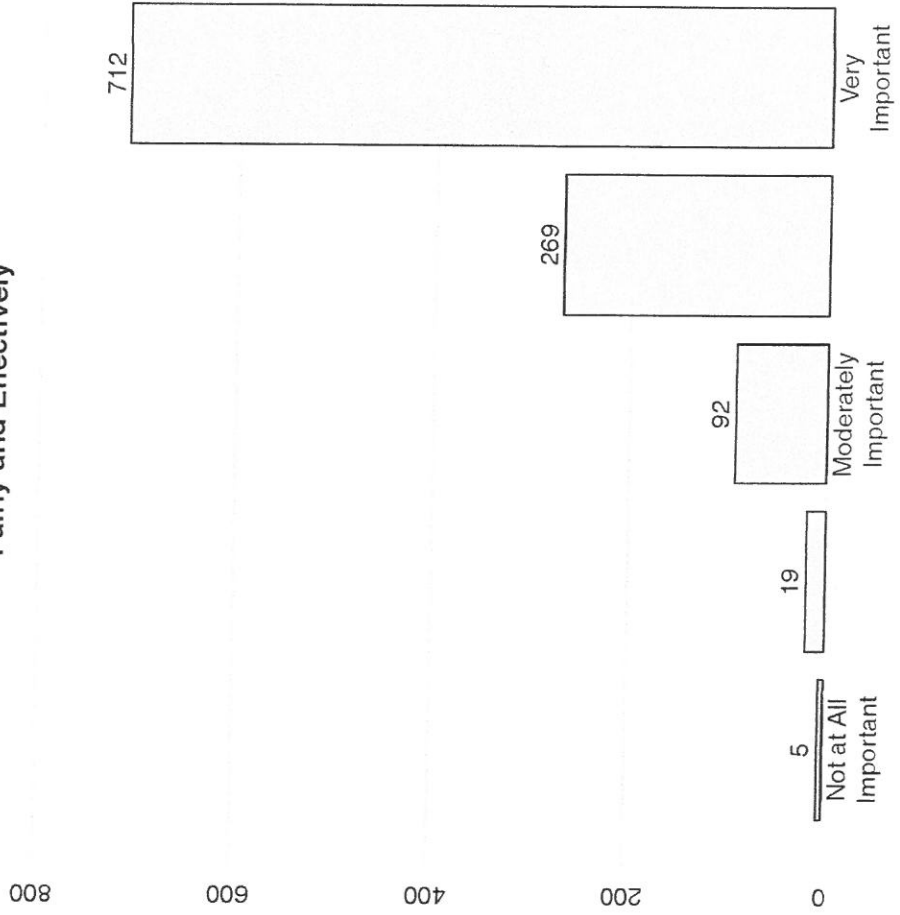
What Is Important?

Taxes and Fees Paid by My Household Do Not Increase



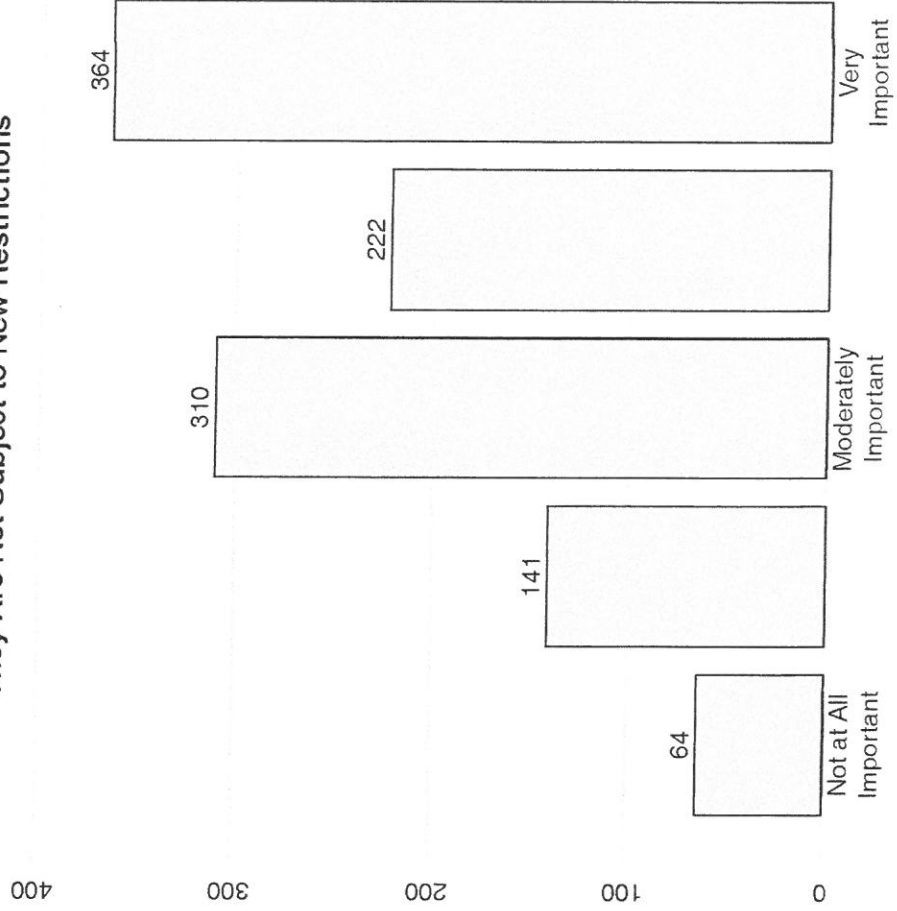
What Is Important?

Existing Regulations Are Enforced Fairly and Effectively



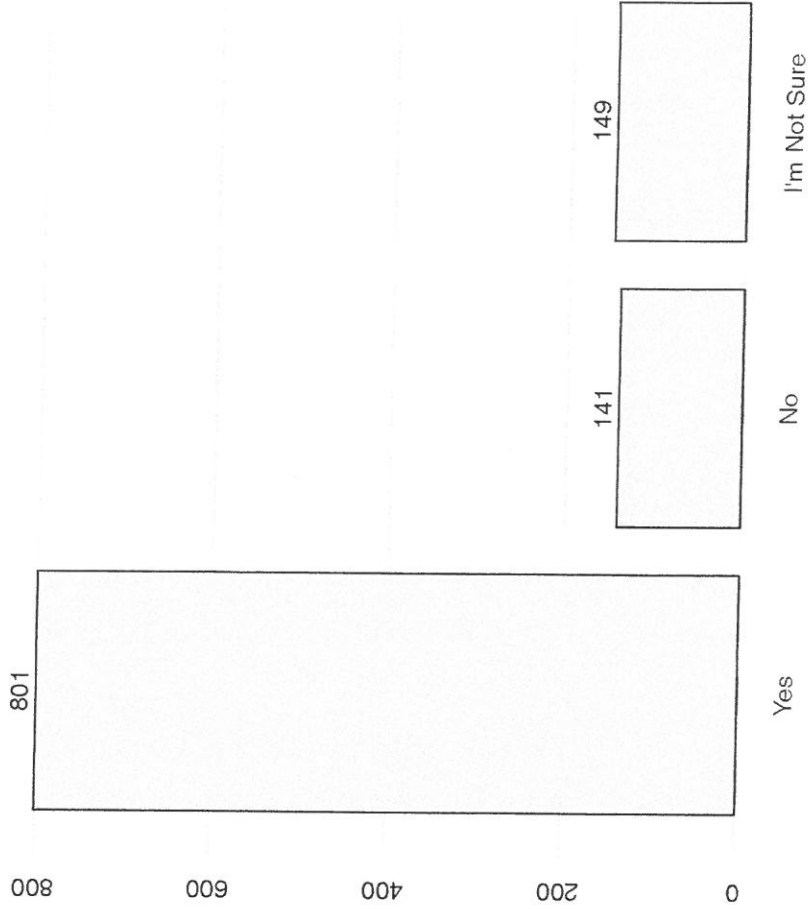
What Is Important?

Existing Uses of Private Land Are Grandfathered so That They Are Not Subject to New Restrictions



Support for Restrictions

In General, Do You Support Greater Use of Development Setbacks and Land Inspections to Limit Future Development on Riparian Land?



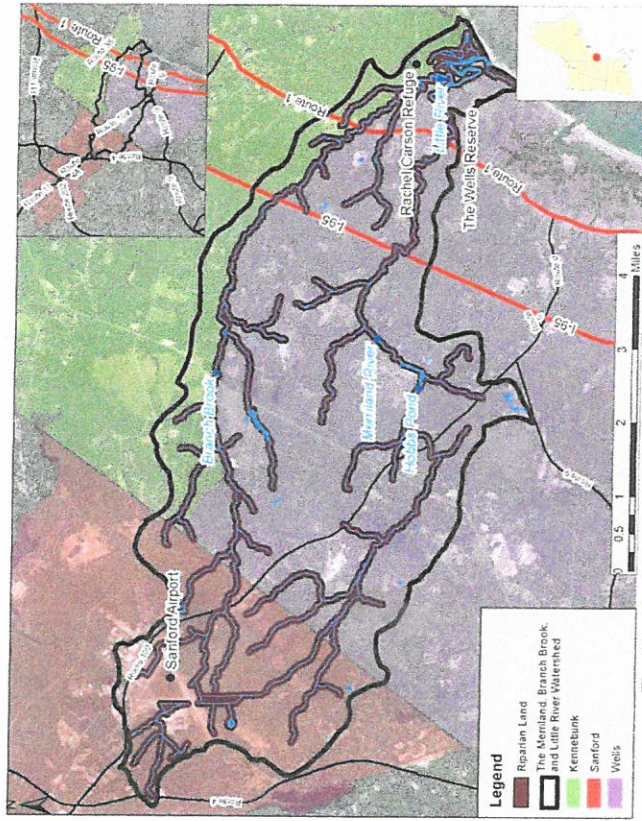
Policy Choice Models

- To evaluate residents' values and tradeoffs we use policy choice models.
 - Survey-based methods that estimate values from respondents' votes over different policy options.
- Respondents choose among policies with different effects and costs, as in a referendum.
- By evaluating votes over many different alternatives, we calculate tradeoffs that reveal residents' values.
- Results also reveal what types of riparian protection policies are most supported.

Describing the Situation

RIPARIAN LAND IN KENNEBUNK, SANFORD AND WELLS

The map below shows the area addressed by this survey. This includes all land that drains into the Merriland, Branch Brook, and Little Rivers within Kennebunk, Sanford and Wells.

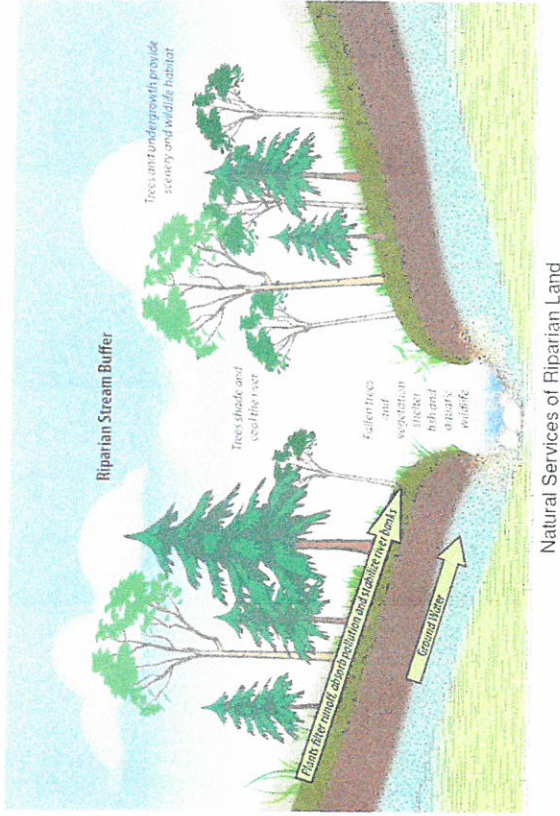


The Merriland, Branch Brook, and Little River (MBLR) Watershed

Across this area there are about 4,700 acres of land within 300 feet of a river or stream. This area is shown as Riparian Land on the map. 4,300 acres of this riparian land are covered by trees and natural vegetation. The remaining 400 acres have been developed or cleared.

WHAT RIPARIAN LAND DOES

The figure below illustrates some of the main natural services provided by riparian land, such as absorbing pollution, improving wildlife habitat and providing natural scenery.



Development in Kennebunk, Sanford, and Wells is removing trees and vegetation on more riparian land each year. This is affecting scenery, river ecosystems, fish, and water quality. Because of this, some people have called for additional restrictions on clearing and development of this land. At the same time, other people do not want the development rights of private landowners to be further restricted.

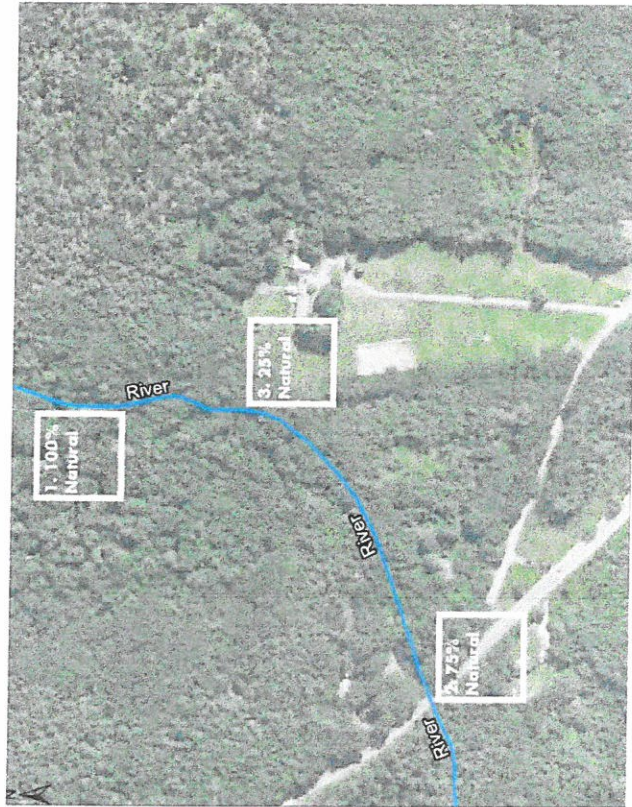
Describing the Situation

HOW DEVELOPMENT IS AFFECTING RIPARIAN LAND

Development and clearing is already restricted on riparian land in Maine, but some occurs anyway. Development and clearing often happens when people want to expand lawns, improve their view of the river, or add a dock.








Riparian land development is occurring at a rate of about **5% every 10 years**. Already, nearly 10% of riparian land has been developed.

The image below shows the difference between natural and developed riparian land. In square 1, **100%** of riparian land is covered by natural vegetation. In squares 2 and 3, approximately **75%** and **25%** of the land, respectively, is covered by natural vegetation. The rest has been developed or cleared.



COMPARING PROTECTION OPTIONS

The upcoming questions will ask you to compare different ways of protecting riparian land in Kennebunk, Sanford and Wells, and vote for the ones you prefer. You may also vote to reject the proposed programs and retain the status quo. **Effects of each option will be described by the following effects, as estimated by scientists:**







Effect	What it Means
 Natural Riparian Land	The amount of riparian land covered by natural vegetation. Currently about 91% of the land is in natural condition. With no action 85% of riparian land in the area (4000 acres) will remain in natural condition in 5-10 years.
 River Ecology	Average ecological condition of area rivers, measured by the diversity of small organisms (dragonflies, mayflies, etc.) that live there. A score of 100% is the best possible condition in the area. A score of 0% means nothing lives in the water. With no action, the ecological condition in area rivers will be 55% in 5-10 years. The score today is about 60%.
 Recreational Fish	The number of recreational fish in area rivers, measured by scientific sampling of brook trout. A score of 100% would mean that area rivers contain the maximum number of trout possible (30 trout per 1000 sq. feet). Today there are about 19 trout per 1000 sq. feet. With no action, scientists predict there will be an average of 17 trout per 1000 sq. feet (55% of the most possible) in 5-10 years.
 Safe Swimming	The percentage of days in which government tests show that area beaches (Laudholm, Drakes Island, Crescent Surf, and Parson) are safe for swimming. 100% means that all tests show water safe for swimming. With no action, scientists predict 85% of tests will show water safe for swimming in 5-10 years.
 Development Setback	The minimum width of the riparian area where development is restricted. Currently development and clearing is restricted within a minimum distance of 100 feet from rivers and 25 feet from streams . This distance is larger in some areas and for some types of development. Existing (legal) development would be grandfathered if setbacks change.
 Enforcement	Whether enforcement is increased to prevent illegal development or clearing on riparian land. This could include inspections on private land if violations are suspected. Currently, inspections can only occur when a violation has been reported or as part of permitting.
 Cost to your Household per Year	How much the policy will cost your household in unavoidable annual taxes and fees. These are guaranteed to only be spent on the protection option that is indicated.

Example Choice Question

YOU WILL BE ASKED TO VOTE

After considering the current situation and possible protection effects and methods, which do you prefer? You will be given choices and asked to vote for the option you prefer by checking the appropriate box. Questions will look similar to the sample below.

SAMPLE QUESTION:

Method or Effect of Protection	In 5-10 years under the Current Situation	In 5-10 years under Option A	In 5-10 years under Option B
 Riparian Land Condition	85% 4000 out of 4700 riparian acres covered by natural vegetation	87% 4100 out of 4700 riparian acres covered by natural vegetation	95% 4500 out of 4700 riparian acres covered by natural vegetation
 River Ecology	55% of best possible (100%) ecological condition	85% of best possible (100%) ecological condition	85% of best possible (100%) ecological condition
 Recreational Fish	55% 17 out of 30 possible fish per 1000 sq. feet	75% 23 out of 30 possible fish per 1000 sq. feet	55% 17 out of 30 possible fish per 1000 sq. feet
 Safe Swimming	85% of beach tests meet safe swimming guidelines	95% of beach tests meet safe swimming guidelines	85% of beach tests meet safe swimming guidelines
 Development Setback	100 feet required between development and rivers; 25 feet for streams	150 feet required between development and rivers; 75 feet for streams	100 feet required between development and rivers; 25 feet for streams
 Enforcement	No Change in enforcement and inspections	No Change in enforcement and inspections	Increased enforcement and inspections
Cost to your Household per Year	\$0 Increase in Annual Taxes or Fees	\$45 Increase in Annual Taxes or Fees	\$5 Increase in Annual Taxes or Fees
HOW WOULD YOU VOTE? (CHOOSE ONLY ONE) I vote for	<input checked="" type="checkbox"/> NO NEW PROTECTION	<input checked="" type="checkbox"/> OPTION A	<input checked="" type="checkbox"/> OPTION B

If you prefer No New Action Check Here







If you prefer Option A Check Here

If you prefer Option B Check Here

QUESTION 5

OPTION A and OPTION B are possible protection options for the area surrounding the Meriland, Branch Brook, and Little River. The current situation is the status quo with NO NEW PROTECTION.

Given a choice between the three, how would you vote?

Method or Effect of Protection	In 5-10 years under the Current Situation	In 5-10 years under Option A	In 5-10 years under Option B
 Riparian Land Condition	85% 4000 out of 4700 riparian acres covered by natural vegetation	87% 4100 out of 4700 riparian acres covered by natural vegetation	90% 4200 out of 4700 riparian acres covered by natural vegetation
 River Ecology	55% of best possible (100%) ecological condition	75% of best possible (100%) ecological condition	75% of best possible (100%) ecological condition
 Recreational Fish	55% 17 out of 30 possible fish per 1000 sq. feet	65% 20 out of 30 possible fish per 1000 sq. feet	65% 20 out of 30 possible fish per 1000 sq. feet
 Safe Swimming	85% of beach tests meet safe swimming guidelines	90% of beach tests meet safe swimming guidelines	90% of beach tests meet safe swimming guidelines
 Development Setback	100 feet required between development and rivers; 25 feet for streams	100 feet required between development and rivers; 25 feet for streams	200 feet required between development and rivers; 125 feet for streams
 Enforcement	No Change in enforcement and inspections	No Change in enforcement and inspections	No Change in enforcement and inspections
Cost to your Household per Year	\$0 Increase in Annual Taxes or Fees	\$45 Increase in Annual Taxes or Fees	\$30 Increase in Annual Taxes or Fees
HOW WOULD YOU VOTE? (CHOOSE ONLY ONE) I vote for	<input type="checkbox"/> NO NEW PROTECTION	<input type="checkbox"/> OPTION A	<input type="checkbox"/> OPTION B

Economic Values (Willingness to Pay)

Attribute	Description	Value (per unit, per household, per year)
<i>Land Condition</i>	Δ in natural land cover (% of riparian land in natural condition)	\$2.05
<i>River Condition</i>	Δ in aquatic ecological condition (% on 100 point condition index).	\$1.28
<i>Recreational Fish</i>	Δ in recreational fish abundance (% of reference condition for watershed)	\$1.15
<i>Swim Safety</i>	Δ in beach tests passing water quality safety guidelines (% of tests).	\$2.02
<i>Setbacks</i>	Δ in required setback between development and rivers (feet).	\$0.14
<i>Enforcement</i>	Increases in enforcement and inspections (0-1)	\$17.31

Values Across Towns

Attribute	Value (Kennebunk)	Value (Sanford)	Value (Wells)
Land Condition	\$1.53	\$2.27	\$2.70
River Condition	\$1.77	\$0.95	\$1.17
Recreational Fish	\$0.97	\$0.97	\$1.61
Swim Safety	\$2.18	\$1.09	\$2.74
Setbacks	\$0.16	\$0.07	\$0.24
Enforcement	\$22.30	\$8.46	\$22.09

Effect of Watershed Residence

Attribute	Value (Watershed Residents)	Value (Watershed Non-Residents)
Land Condition	\$2.55	\$1.99
River Condition	\$0.91	\$1.41
Recreational Fish	\$1.73	\$1.03
Swim Safety	\$1.74	\$2.14
Setbacks	\$0.23	\$0.11
Enforcement	\$15.86	\$18.03

Illustrative Scenarios (An Example)

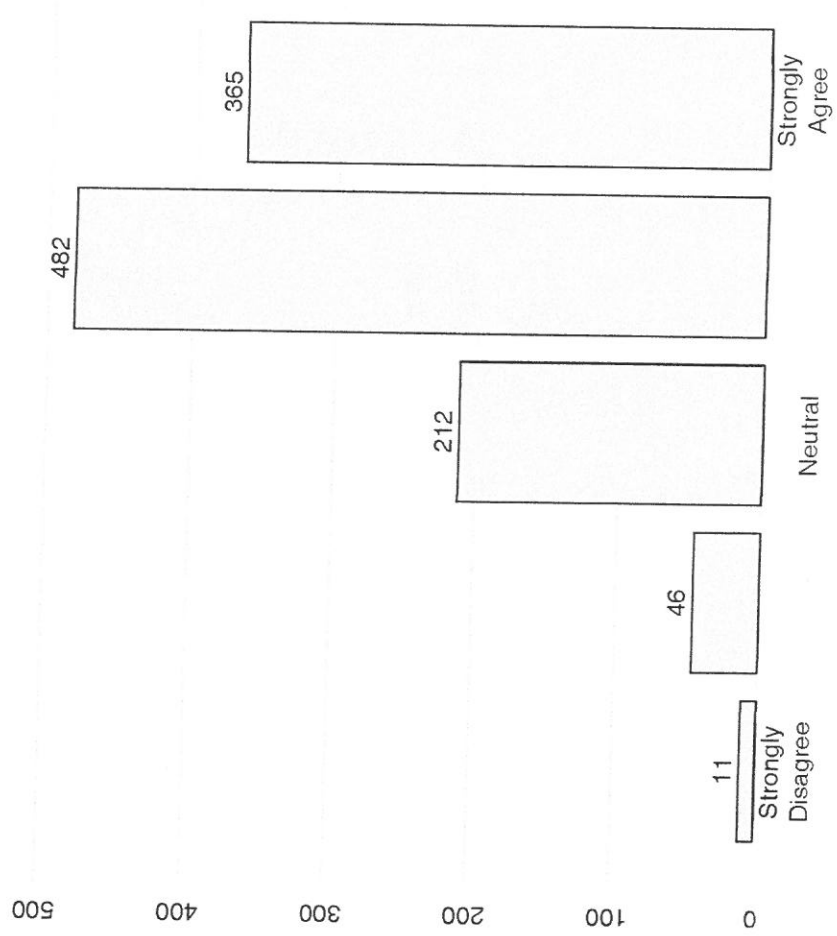
Attribute	No Change	Option A 	Option B
<i>Land Condition</i>	85%	90%	95%
<i>River Condition</i>	55%	60%	65%
<i>Recreational Fish</i>	55%	65%	65%
<i>Swim Safety</i>	85%	85%	88%
<i>Setbacks</i>	100	150	100
<i>Enforcement</i>	No Change	Increased	Increased
<i>Cost per Year</i>	\$0	\$25	\$45
Predicted Vote	22%	48%	30%

Linking Economic and Ecological Results

- Results of scenario (what if?) illustrations such as this can be combined with ecological results that project the changes that might occur as a result of a policy action.
- Resulting forecasts can be used to predict votes and values for specific policy options.
- Even though there are positive values for many types of outcomes (e.g., changes in *swimming safety*), it may be difficult for natural scientists to predict these outcomes based on available data.

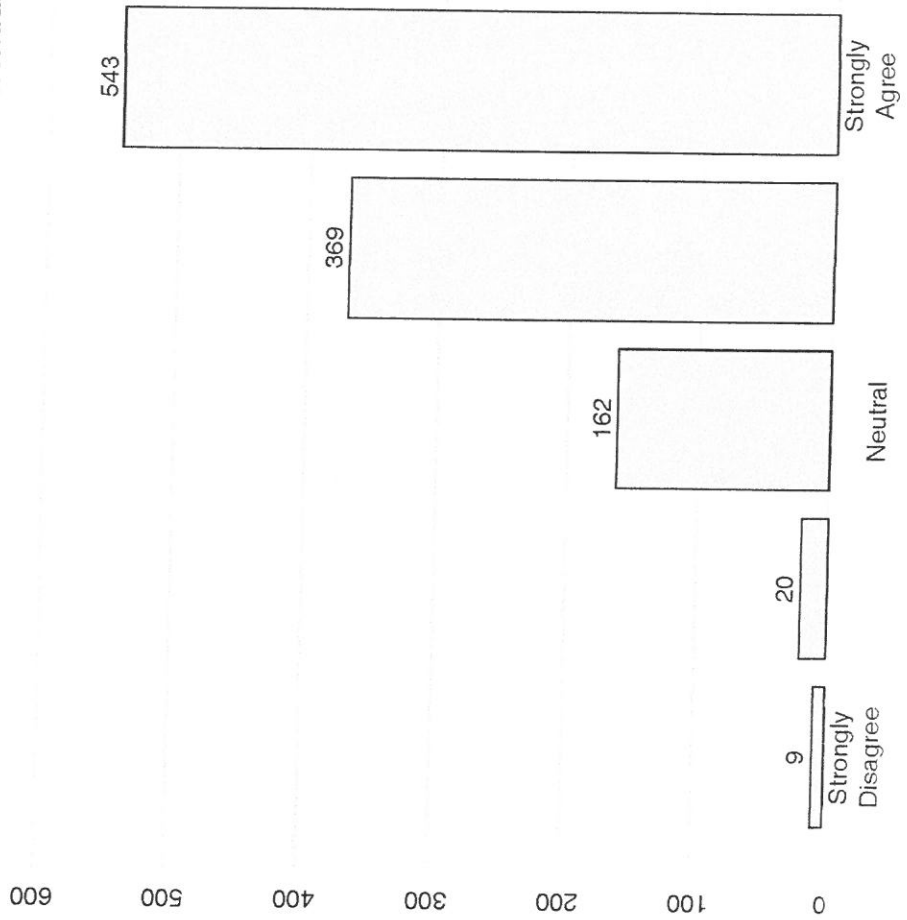
Follow-Up Questions

I Feel Confident about My Answers



Follow-Up Questions

I Would Vote in the Same Way on a Public Vote or Referendum



Summary and Conclusions

- There is considerable support and value for restoration and protection of riparian buffers.
- Most residents support greater development restrictions and more enforcement to obtain improvements in land and water.
- Residents are willing to pay for programs to achieve these improvements, but outcomes matter.
- Specific results differ across towns, but the same general findings apply.
- Results can be used to predict the types of programs that residents would support most strongly.
- Findings challenge common preconceptions about residents values and policy support.