



# State of Delaware Wetlands Survey

September–October 2017

## Final Report

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**Section 1**  
**Report of Findings**

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## PROJECT OVERVIEW AND RESEARCH METHOD

The Department of Resources and Environmental Control (DNREC) commissioned this statewide survey to assess Delaware residents' perceptions of wetlands, and issues related to the restoration and protection of wetlands. Through this representative statewide survey, DNREC is seeking to understand how much residents understand and are aware of wetlands in Delaware, how they view the condition of the lands and waters surrounding where they live, their own role in protecting the natural environment, the best ways to communicate with the public about these matters, and other issues that might impact their level of engagement.

OpinionWorks LLC, an independent research organization based in Annapolis, Maryland, developed and conducted this survey under the guidance of Alison Rogerson of DNREC's Wetland Monitoring & Assessment Program and her staff colleagues.

A total of 600 randomly-selected adult residents across Delaware were interviewed by telephone September 17–October 3, 2017. This statewide sample produces a margin of sampling error of no more than  $\pm 4.0\%$  at the 95% confidence level, meaning that if every adult Delaware resident had been interviewed, the actual results could be expected to differ by no more than that margin at least 95% of the time.

These calls were made by trained and supervised live interviewers, according to opinion research best practices, from a call center in Charlottetown, Prince Edward Island, Canada. Throughout interviewing, a random process and sampling quotas were adhered to, in order to match the characteristics of Delaware's adult population.

The sample was stratified, with 200 interviews conducted in each of the State's three counties, so that each county's results could be viewed with confidence. After the sample was collected, statistical weights were so that each county would be represented in the statewide survey results in proper proportion to its share of the State's population. Weights were also applied for race and ethnicity, gender, and age to bring the sample into close compliance with the distribution of Delaware's population, based on 2016 one-year estimates from the U.S. Census Bureau's American Community Survey.

Where there are significant or noteworthy differences in views among population subgroups, observations will be made in this narrative.

Full results follow.

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## EXECUTIVE SUMMARY

This survey provides a comprehensive picture of the attitudes and perceptions of Delaware residents.

Residents statewide give the natural environment near them a B-Minus grade on the traditional A to F scale. Grades for water quality are even lower, averaging a C-Plus. In fact, when assessing the public's level of concern for five different environmental problems, it was water pollution in local creeks, rivers, and bays that was far and away the top concern, followed by loss of natural habitat.

"Wetland" is a term that 85% of Delaware residents find familiar. Asked to describe their understanding of a wetland, most answered descriptively, mentioning words and phrases related to wildlife, habitat, and marshy conditions. By three-to-one, people who had an opinion thought that having a wetland near them would be a *good* thing.

Despite the fact that every resident of Delaware has a wetland within a mile of where they live, about six in ten do not know that, however. In fact, four residents in ten are certain that is *not* the case. When presented with a series of positive facts about the role wetlands play, numbers ranging as high as 70% said the facts made them feel *much more* positive about wetlands.

After hearing those facts, positive impressions of wetlands jumped by 20 percentage points in this survey, indicating that the public is ready and willing to respond to education. The barrier is only having sufficient resources to communicate effectively and penetrate the public's consciousness.

The survey measured public recognition and trust of DNREC and several partner institutions. We found that DNREC has a very positive profile and is trusted to provide information about conservation and natural resource protection. But DNREC's role in communicating about wetlands is not well-known. Only one-third of the public was aware that DNREC has this role, and only one in five gave DNREC credit for doing a good job of communicating about wetlands.

The survey provides guidance on the methods of communicating that would be most effective, and it provides detailed information to help Delaware Wetlands target its communications.

In terms of personal stewardship of wetland on their own properties, only a 13% of property owners on more than one acre have restored or even thought about restoring wetlands. Only 15% are aware that incentive programs are available to help them pay for this. What these landowners want most is technical assistance and funding, they said. More work remains to be done to communicate with eligible property owners about the help that is available to them.

Finally, the survey measured three key attitudes that are predictors of conservation behavior. Like residents of surrounding states, Delaware residents are reluctant to admit they contribute at all to water pollution – with more than one-third strongly insisting that they do not contribute *at all* to the problem. Despite that, three-quarters of the public wants to do more to help make the natural environment in Delaware healthier, and a sizeable number could see themselves speaking out on the topic.

This report provides detailed results on the following pages, as well as complete appendices with the raw survey findings. The full report follows.

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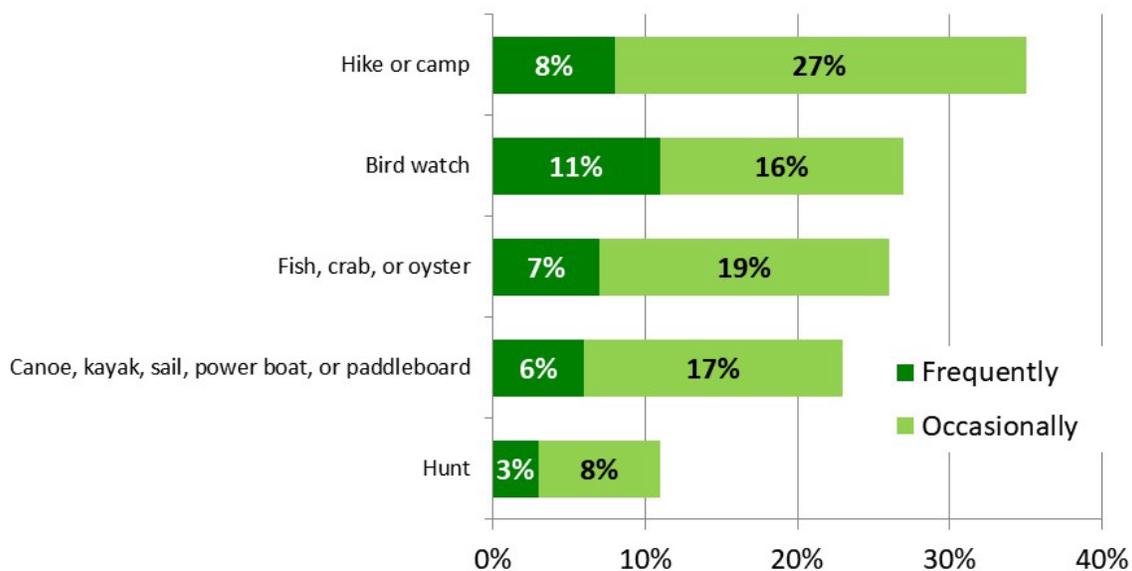
## DETAILED FINDINGS

### Outdoor Activities

A large majority of Delaware residents are actively engaged with the outdoors. Sixty-one percent of the survey sample said they either frequently or occasionally take part in one or more of five outdoor activities.

- The most widely adopted activity is hiking or camping. Eight percent of Delaware residents said they frequently hike or camp, and another 27% said they do so occasionally, for a total of 35%.
- Eleven percent frequently bird watch, and 16% do it occasionally, totaling 27%.
- Seven percent frequently and 19% occasionally fish, crab, or oyster (26% total).
- Six percent canoe, kayak, sail, power boat, or paddleboard frequently, and 17% do it occasionally (23% total).
- Three percent hunt frequently, and 8% hunt occasionally (11% total).

## Outdoor Activities



Do you frequently, occasionally, rarely, or never do the following things?

Why is this important to know? People who are actively engaged with the outdoors are more likely to understand and have an affinity for issues surrounding natural resource protection and restoration. Wetlands is a good example. As measured in this survey, for example, people who frequently or occasionally take part in one or more of these activities are more likely than others to feel they could describe a wetland and are more likely to think it is a good thing to have a wetland near where they live.

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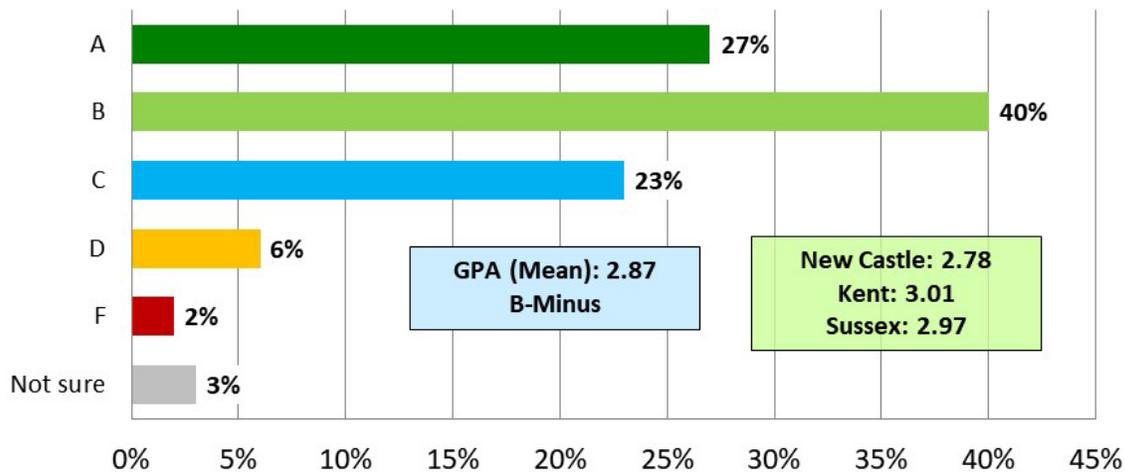
### Perceptions of the Health of the Natural Environment

In engaging the public, it is helpful to know whether they view the natural environment around them as healthy or imperiled. Asked to “grade the condition of the natural environment near you, things such as animal habitat, woodlands, and parks” on the traditional A through F scale used in school, residents across Delaware offered a B-Minus grade. On a 4.0 grading scale, their grades averaged 2.87.

Twenty-seven percent of the State’s residents graded the natural environment near them an “A,” and 40% offered a “B” grade, while 23% gave the environment a “C.” Eight percent gave the natural environment poor or very poor grades of “D” or “F.”

## Grading the Natural Environment Near You

*Animal Habitat, Woodlands, and Parks*



**Students are often given the grades of A, B, C, D, or Fail. If I were to ask you to grade the condition of the natural environment near you, things such as animal habitat, woodlands, and parks, on the A through F scale, where “A” is healthy and beautiful, and “F” is contaminated and ugly, what grade would you give it?**

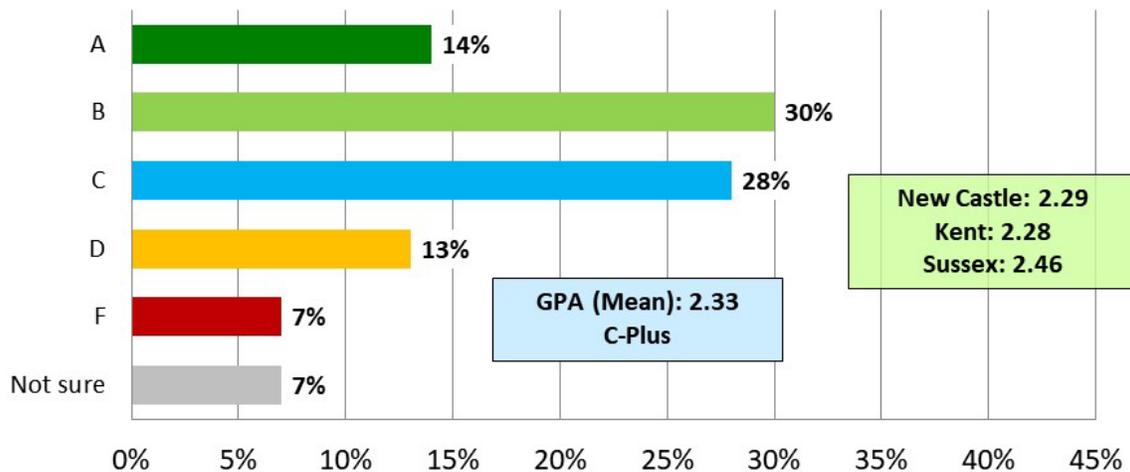
Grades are lowest in New Castle County, averaging 2.78 on the 4.0 scale. Kent (3.01) and Sussex County residents (2.97) gave higher grades.

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Thinking of the “water quality of the creek, river, or bay closest to your home, where ‘A’ is healthy and clean, and ‘F’ is contaminated and dirty,” grades are much lower. Statewide, water quality grades averaged 2.33, or a C-Plus.

Only 14% statewide graded their closest water an “A,” while 30% give it a “B” and 28% a “C.” A combined 20% graded their closest waters a dismal “D” or “F.”

## Grading Water Quality Creek, River, or Bay Closest to Your Home



**On that same A to F scale, how would you grade the water quality of the creek, river, or bay closest to your home, where “A” is healthy and clean, and “F” is contaminated and dirty?**

On local water quality, Kent County (2.28) offered grades as low as the more urbanized New Castle County (2.29). Sussex County (2.46) has a somewhat more positive view of their local waters, though nowhere does the grade rise above a C-Plus average. While African-American residents (2.40) are on par with white residents (2.37) in their view of water quality, the score is absolutely dismal among Hispanics (1.07).

### Level of Concern for Environmental Problems

Five environmental problems were tested to determine how much the public across Delaware is concerned about them. This exercise helps stewards of the natural environment know how best to communicate and engage the public, and how tuned in average residents are to environmental problems and threats.

These are the five issues that were tested:

- Water pollution in Delaware’s creeks, rivers, and bays
- Extreme weather events
- Loss of natural habitat, such as wetlands and forests

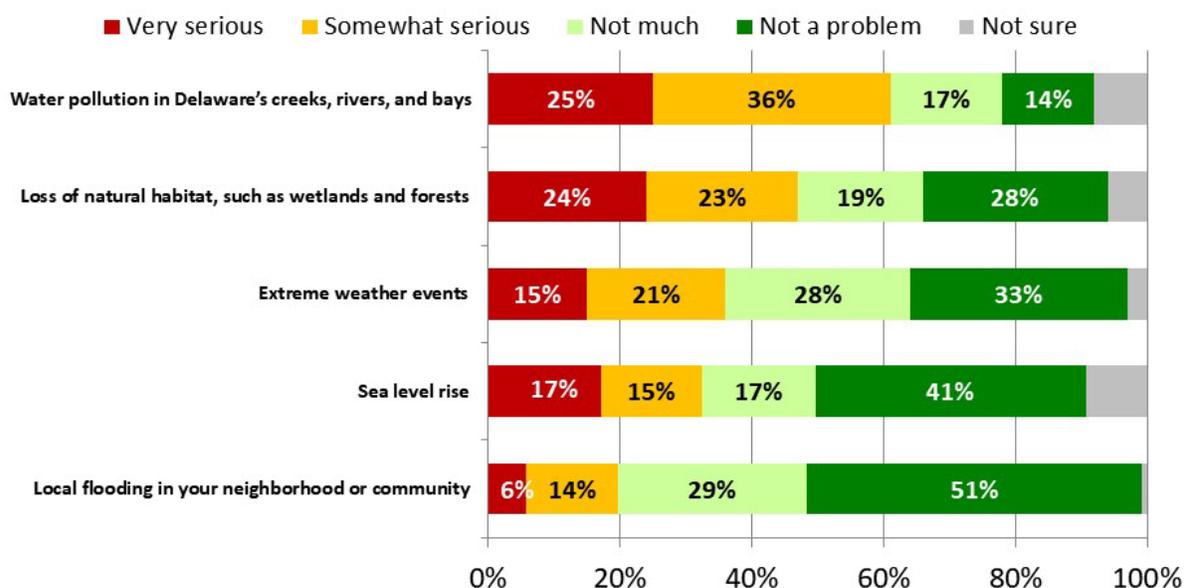
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- Sea level rise
- Local flooding in your neighborhood or community

The top concern in Delaware among these five is “water pollution in Delaware’s creeks, rivers, and bays.” One-quarter of the State’s population (25%) called water pollution a “very serious problem,” and another 36% called it “somewhat serious.” That totals 61% of the public who consider water pollution in Delaware serious.

The second leading concern is loss of natural habitat, such as wetlands and forests. That is considered a very serious problem by 24%, and a somewhat serious problem by another 23% (47% total).

## Level of Concern about Problems



Do you consider each of the following to be a very serious problem, somewhat serious problem, not much of a problem, or not a problem at all?

The three other concerns rank somewhat lower:

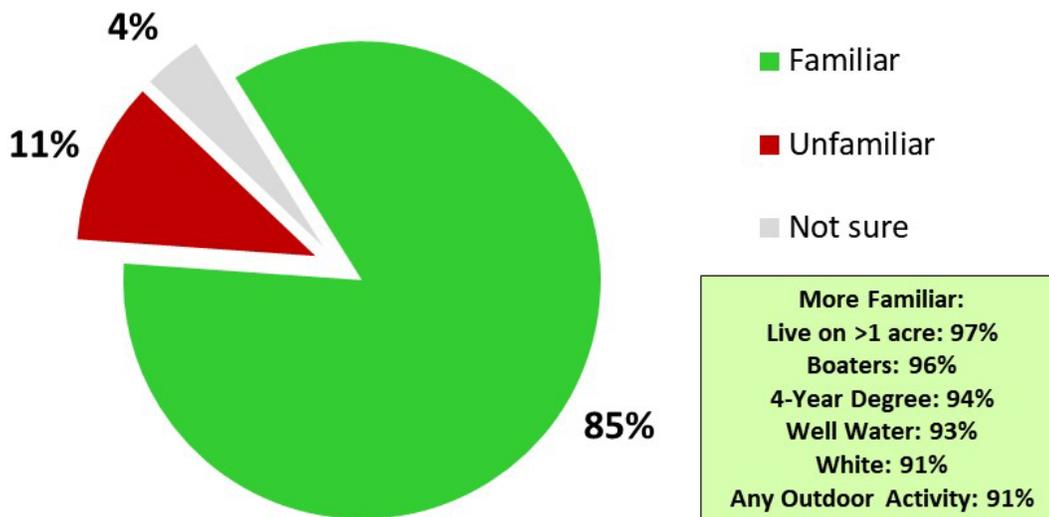
- Extreme weather events are a moderate concern, called very serious by 15% and somewhat serious by 21% (37% total, with rounding).
- Seventeen percent consider sea level rise to be a very serious problem, and another 15% call it somewhat serious (33% total).
- Much lower as a concern is local flooding in your neighborhood or community. Only 6% view local flooding as a very serious problem and 14% view it at somewhat serious (20% total).

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### Perceptions of Wetlands

Eighty-five percent of Delaware residents said they feel familiar with the term “wetland.” Eleven percent admitted that they feel unfamiliar with the term, and 4% said they are not sure.

## Feeling of Familiarity with the Term “Wetland”



Do you feel familiar or unfamiliar with the term “wetland?”

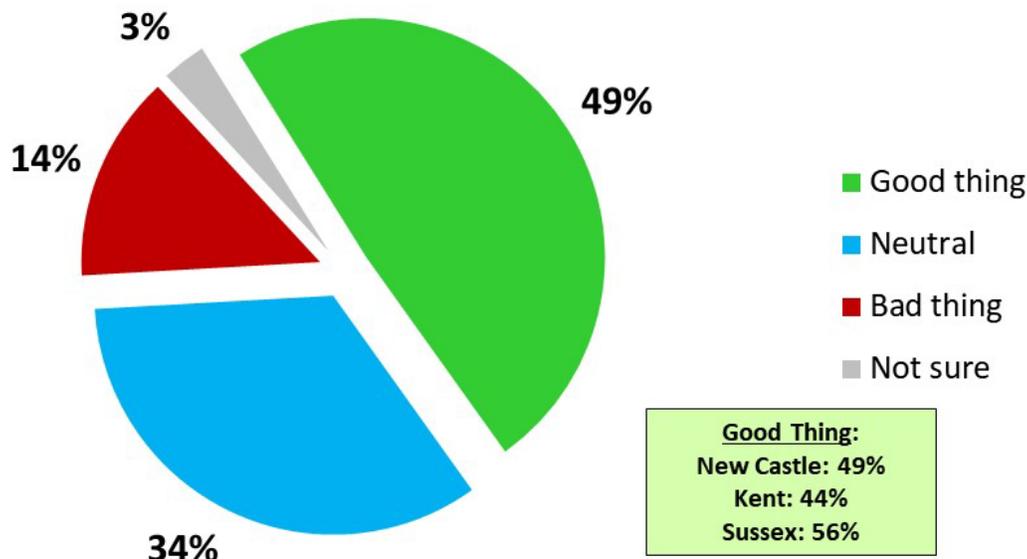
As illustrated in the inset box, several subgroups feel more familiar with the term “wetland” compared to average. They include people who live on more than an acre of land (97% feel familiar), boaters and paddlers (96%), people with a Bachelor’s degree (94%), residents on well water (93%), and people who engage in any of the five outdoor activities measured on the survey (91%). In addition, white residents (91%) feel much more familiar with the term “wetlands” than do African-Americans (72%) or Hispanics (83%).

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## Having Wetlands Near Where You Live



A wetland is an area that is wet at least part of the year, but is not open water like a bay or an ocean. A wetland has plants and even trees that like being in water, and soil that is good at soaking up water.

**Based on that definition, do you think having wetlands near where you live would be (randomize): [a good thing, a bad thing, (or) neutral]?**

Asked why they feel the way they do, those who consider wetlands to be a good thing tended to focus mainly on the benefits for wildlife. Some mentioned that a natural environment that is clean and healthy for animals and plants is healthy for human neighbors, too – indicating that the air is fresh and the water is clean.

As second major theme, many respondents identified the role of wetlands in filtering water and buffering against floods and erosion. Others mentioned the beauty of a natural wetland. A few felt that wetlands can be a hedge against development and sprawl.

On the negative side, mosquitos are the major concern among people who thought it would be a bad thing to have a wetland near where they live. Some people also mentioned snakes, bugs, and other “pests.” A few worried about water incursion into their homes, and a handful said they live in an urban area where wetlands are not possible or appropriate.

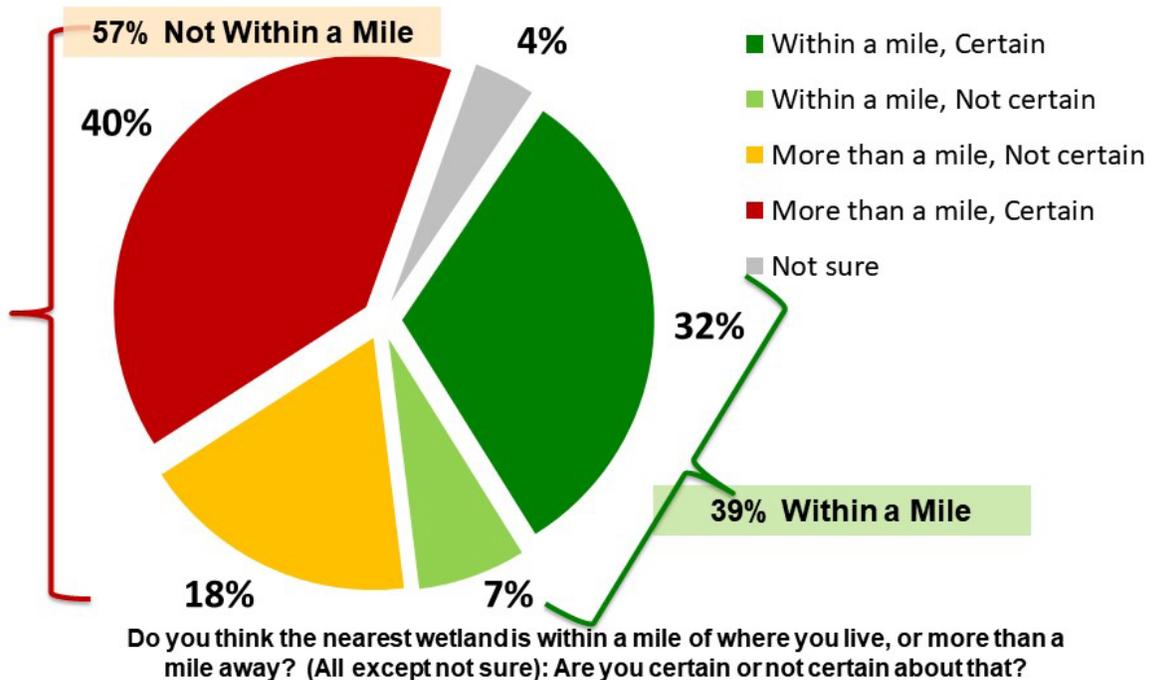
Respondents’ raw comments can be read in their entirety in the Survey Questionnaire section of this report (Tab 2).

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While it is true that there is a wetland within a mile of every Delaware home, most residents do not know that. Nearly six in ten (57%) said they live more than a mile from the nearest wetland. Most of those (40% overall) said they are “certain” that they live more than a mile from the nearest wetland.

Only 39% correctly said they live within a mile of a wetland. Most of those (32% of all residents) said they were certain of that. More likely to think they live within a mile of a wetland are these subgroups: residents of Kent County (43%) and Sussex County (44%), residents of rural areas (42%) and small towns (44%), men (46%), boaters and paddlers (47%), hunters (53%), and people whose own property is often or sometimes flooded (63%).

## Wetland Within a Mile of Where You Live



### Testing the Impact of Facts

Six facts about wetlands were tested to measure their persuasiveness and impact with the general public. The statements tested were these:

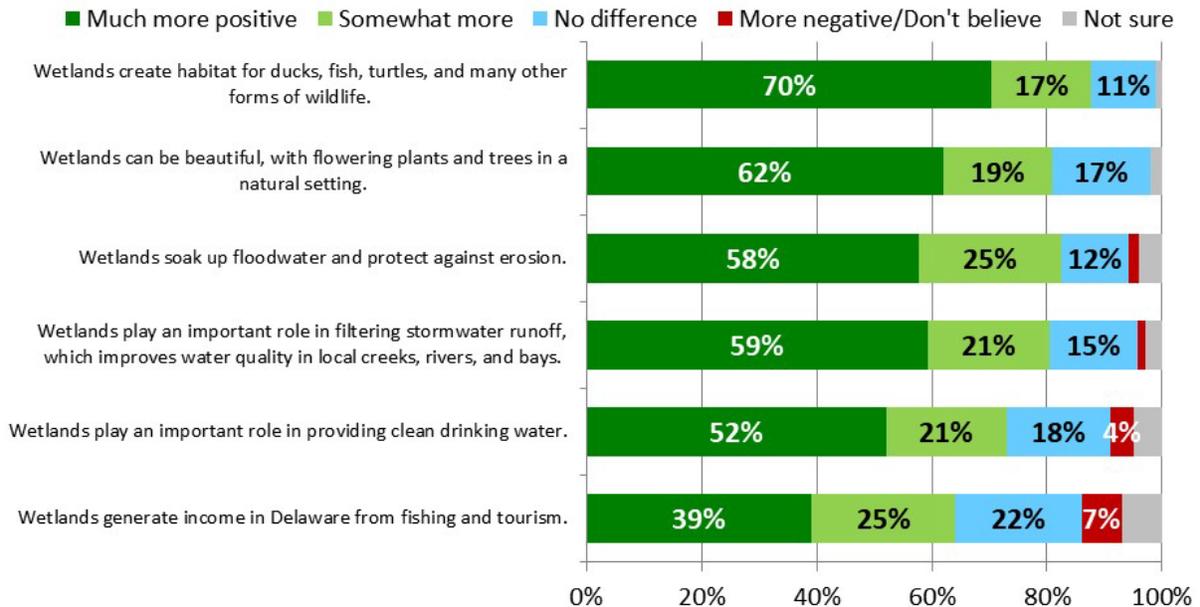
- Wetlands play an important role in filtering stormwater runoff, which improves water quality in local creeks, rivers, and bays.
- Wetlands create habitat for ducks, fish, turtles, and many other forms of wildlife.
- Wetlands generate income in Delaware from fishing and tourism.
- Wetlands can be beautiful, with flowering plants and trees in a natural setting.
- Wetlands soak up floodwater and protect against erosion.
- Wetlands play an important role in providing clean drinking water.

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Survey participants were asked if each fact “makes you feel much more positive about wetlands, somewhat more positive, or makes no difference to you.” The facts were randomized and asked in various sequences so the order would not affect how people responded.

## Impact of Facts about Wetlands

### How Much Individual Facts Improve Impressions of Wetlands



**I would like to read you a few facts about wetlands. For each one, tell me if it makes you feel much more positive about wetlands, somewhat more positive, or makes no difference to you. All of these statements are true, but if you just don't believe one, please say so.**

This is how these facts stratified in their impact:

- Most impactful for residents, by a significant margin, is the idea that “Wetlands create habitat for ducks, fish, turtles, and many other forms of wildlife.” Seventy percent of residents said this fact makes them feel much more positive about wetlands. Another 17% it makes them feel somewhat more positive.
- Second most impactful, causing 62% to feel much more positive and 19% to feel somewhat more positive, are the aesthetics: “Wetlands can be beautiful, with flowering plants and trees in a natural setting.”
- Although localized flooding was not seen as much of a problem by most residents, nonetheless they appreciate the role of wetlands in helping prevent or lessen flooding and erosion. Fifty-eight percent feel much more positive and 25% somewhat more positive when they hear that “Wetlands soak up floodwater and protect against erosion.”
- The water quality benefits of wetlands generate similar levels of positive feelings. Knowing that “wetlands play an important role in filtering stormwater runoff, which improves water quality in local creeks, rivers, and bays,” 59% feel much more positive and 21% somewhat more positive about wetlands.

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- Perhaps somewhat surprisingly knowing the importance of clean drinking water to residents, somewhat less impactful is the idea that “wetlands play an important role in providing clean drinking water.” Fifty-two percent feel much more positive and 21% feel somewhat more positive about wetlands after hearing that fact. But 4% volunteered that they do not believe this fact and another 5% were not sure, suggesting that people may need to be told more directly how wetlands play this role.
- Least impactful of the six facts is the economic impact of wetlands. Hearing that “wetlands generate income in Delaware from fishing and tourism,” a relatively low 39% feel much more positive and 25% feel somewhat more positive about wetlands. Almost one-quarter (22%) said this fact has no effect on their impression, while 6% volunteered that they do not believe it, and 1% actually felt more negative after hearing this fact. Many residents may have a hard time imagining how wetlands could have this impact, or how it could benefit them personally.

It is important to know that all of these facts are a net positive, and all of them can be helpful messages when communicating with the public. But when testing a list of ideas like this, it is important to determine which ones have the *most* impact with the general public, resonating most immediately and strongly. Headline messaging should be focused on the ideas that gravitate to the top of this list, while facts that scored a little lower are better placed in a supporting role.

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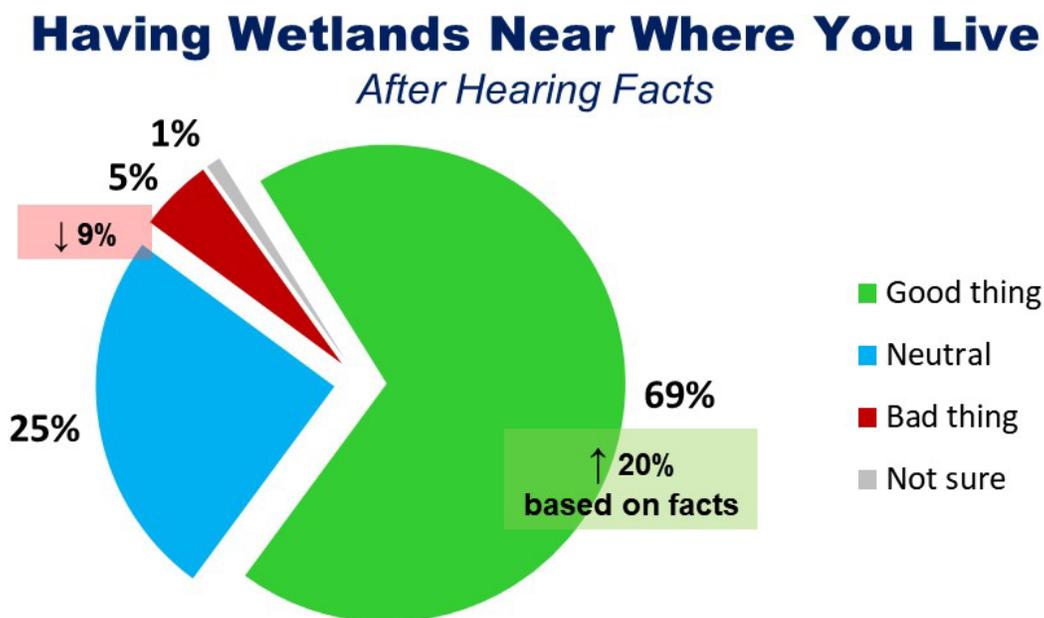
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### Movement in Opinion Based on the Facts

After hearing these facts, survey participants were asked again if they thought having wetlands near where they live would be “a good thing, a bad thing, or neutral.” Re-asking this question showed considerable positive movement in opinion based on hearing the six facts.

Prior to hearing the facts, 49% felt it would be a good thing to have wetlands near them, 14% thought it would be a bad thing, and 34% were neutral, based just on their own knowledge and a simple definition of wetlands we provided.

After hearing and responding to the facts, 69% thought it would be a good thing to have wetlands near them, only 5% thought it would be a bad thing, and 25% were neutral. This is a 20-percentage point increase in the number who felt positive, before and after testing a short list of facts. This shows the tremendous potential for impacting public attitudes about wetlands through messaging.



Having heard those facts, do you think having wetlands near where you live would be (randomize): [a good thing, a bad thing, (or) neutral]?

### Trusted Messengers

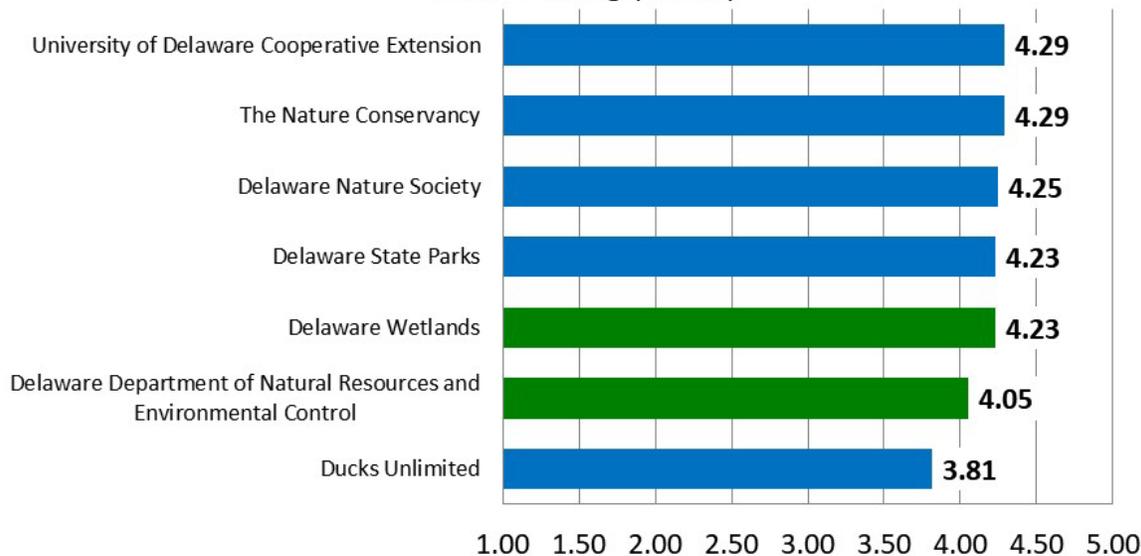
To understand how much trust the public places in the information DNREC provides, the survey measured public trust of “information you might get about conservation and protecting the natural environment” from DNREC, as well as its “Delaware Wetlands” program. The survey also measured trust of the information provided by five other organizations and agencies with which DNREC might partner in communicating with the general public, to help determine where it might be most beneficial to coordinate communications efforts.

Survey participants rated DNREC, Delaware Wetlands, and each of the partners on a 1 to 5 scale. The highest score (5) “means you would trust them a lot,” and the lowest score (1) “means not at all.”

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This chart summarizes the findings.

## Level of Trust in Information 1 to 5 Rating (Mean)



**How much would you trust information you might get about conservation and protecting the natural environment from each of these groups? Please use a scale from 5 down to 1 where 5 means you would trust them a lot, and 1 means not at all. If you have not heard of them, just say so.**

Trust is high almost across-the-board. Among the seven entities tested, five scored 4.23 or higher on the 5-point scale. University of Delaware Cooperative Extension, The Nature Conservancy, Delaware Nature Society, Delaware State Parks, and Delaware Wetlands all scored at that high level of trust.

Typically, any rating above 4.00 on this scale of trust is very positive, indicating strong trust. Within that context, DNREC's score of 4.05 is healthy. Nearly half the public (46%) gave DNREC the highest possible score of "5," and another 18% offered a trust rating of "4," totaling nearly two-thirds (65%) of the public who are overtly positive about DNREC. Only 10% gave DNREC a negative score of "2" or "1." Most of the remainder (16%) offered a middling rating of "3."

This finding is significant. The state agency DNREC has a positive profile and engenders trust when it communicates about conservation and protecting the natural environment. Consequently, the Wetlands program should feel encouraged to make its connection to DNREC well-known, for example including the agency's logo on its materials and linking to its digital content.

Rounding out the list, Ducks Unlimited scored slightly lower at 3.81. Still a very positive rating, trust in DU is somewhat softer than the other partners tested across the general public. Trust in DU is significantly higher in the State's rural areas (4.04), among hunters (4.14), and among property owners of more than one acre who have wet areas on their property (4.42).

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### Visibility of Partners

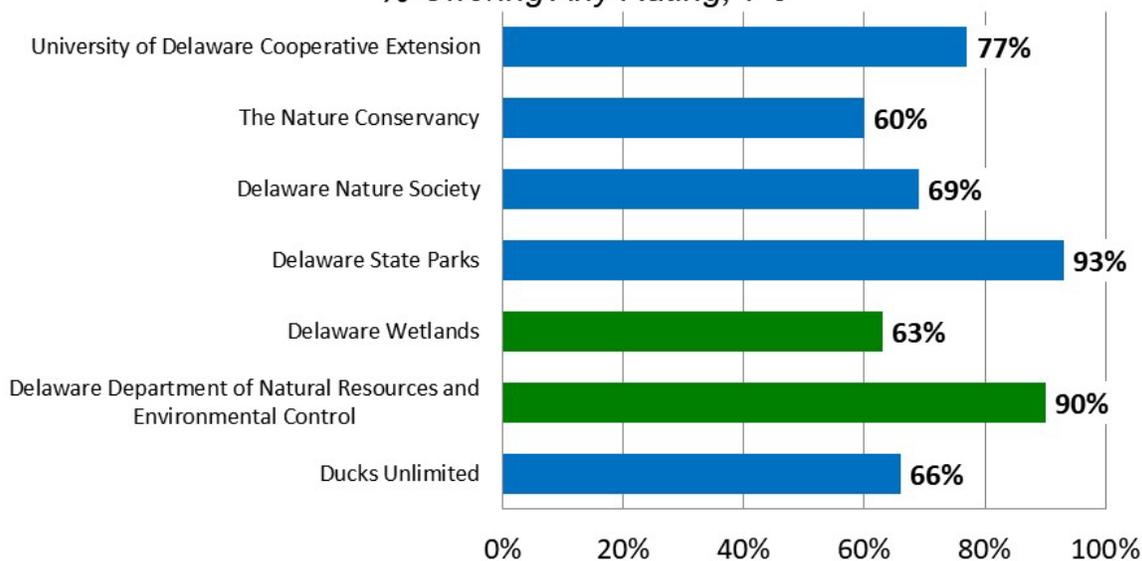
A second measure of the trust data shows how well-recognized DNREC and its partners are by the public. The chart below shows the percentages of the public who felt they knew each organization well enough to offer any kind of a rating at all, 1 through 5. This analysis weeds out people who said they had not heard of the entity, or who had heard of them but felt they did not know enough about them to offer a rating.

In this chart, the partners are organized in the same sequence, from most trusted to somewhat less trusted. Though all of these organizations and programs enjoy positive trust from the public in Delaware, in partnering with other entities to communicate about wetlands with the general public, the most potent combination is high trust and strong recognition. By that analysis, Delaware State Parks and University of Delaware Cooperative Extension may offer the greatest ability to reach and impact the broad public.

But all of these partners are positively viewed, and as illustrated with Ducks Unlimited, have their own constituencies where trust and visibility are higher, and which can be effectively reached through a partnership.

## Level of Recognition of Groups

*% Offering Any Rating, 1-5*



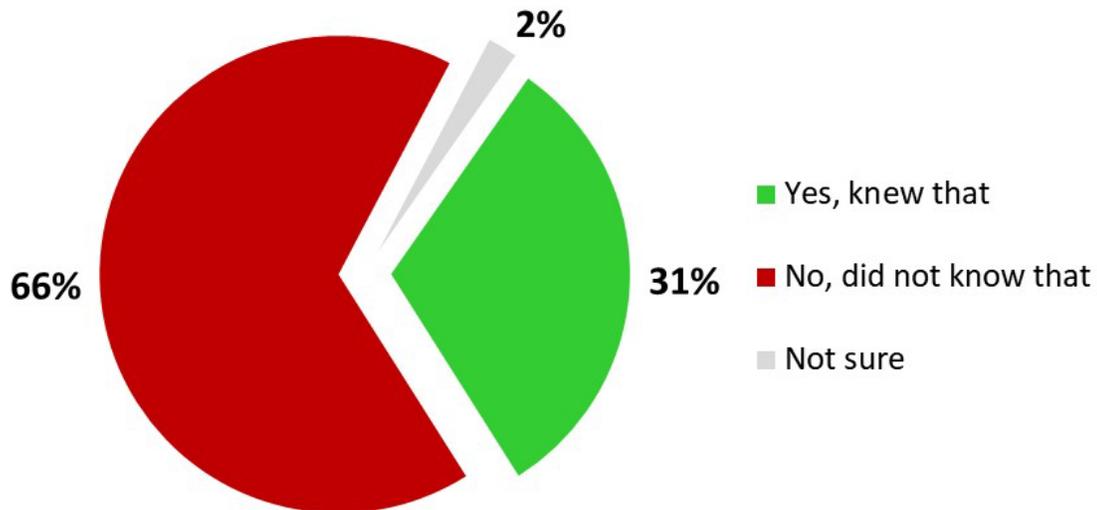
**How much would you trust information you might get about conservation and protecting the natural environment from each of these groups? Please use a scale from 5 down to 1 where 5 means you would trust them a lot, and 1 means not at all. If you have not heard of them, just say so.**

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### Communicating with the Public

Asked if they knew that DNREC has a role communicating with the public about wetlands, only 31% of respondents said they were aware of that before taking this survey. Two-thirds (66%) admitted that they had never known about that role for DNREC.

## Aware of DNREC Role With Wetlands



**In Delaware, the Department of Natural Resources and Environmental Control, also called DNREC (“Denn-Rec”), has a role in providing information to the public about wetlands. They do this through a program called “Delaware Wetlands.” Before taking this survey, did you know that DNREC had the role of communicating with the public about wetlands?**

Awareness of this role is higher among these subgroups: rural residents (42%), birdwatchers (44%), people living on more than one acre (50%), and hunters (53%).

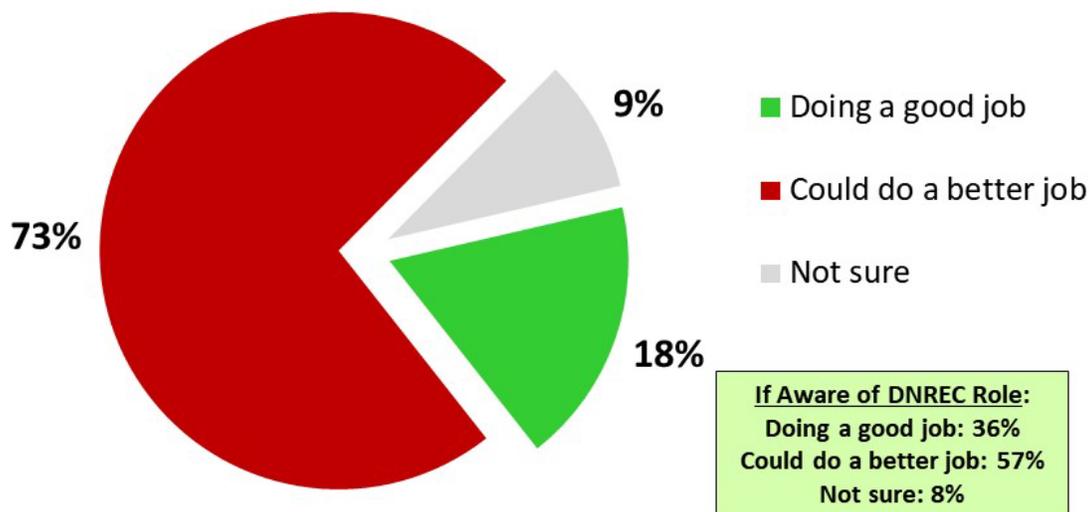
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Whether they were aware of this role for DNREC or not, all survey respondents were asked if they felt that “DNREC is doing a good job or could do a better job communicating with the public about wetlands.” Overall, 18% said DNREC is doing a good job communicating about wetlands, while 73% said it could do a better job and 9% offered that they were not sure.

Confidence in the job DNREC is doing communicating about wetlands is twice as high among the one-third (31%) of the public who said they have known about this role for DNREC. In this more knowledgeable subgroup of the public, 36% said DNREC does a good job communicating about wetlands, while 57% said DNREC could do a better job, and 8% were not sure.

## Rating DNREC’s Job Communicating about Wetlands



**Just based on what you know, do you think DNREC is doing a good job or could do a better job communicating with the public about wetlands?**

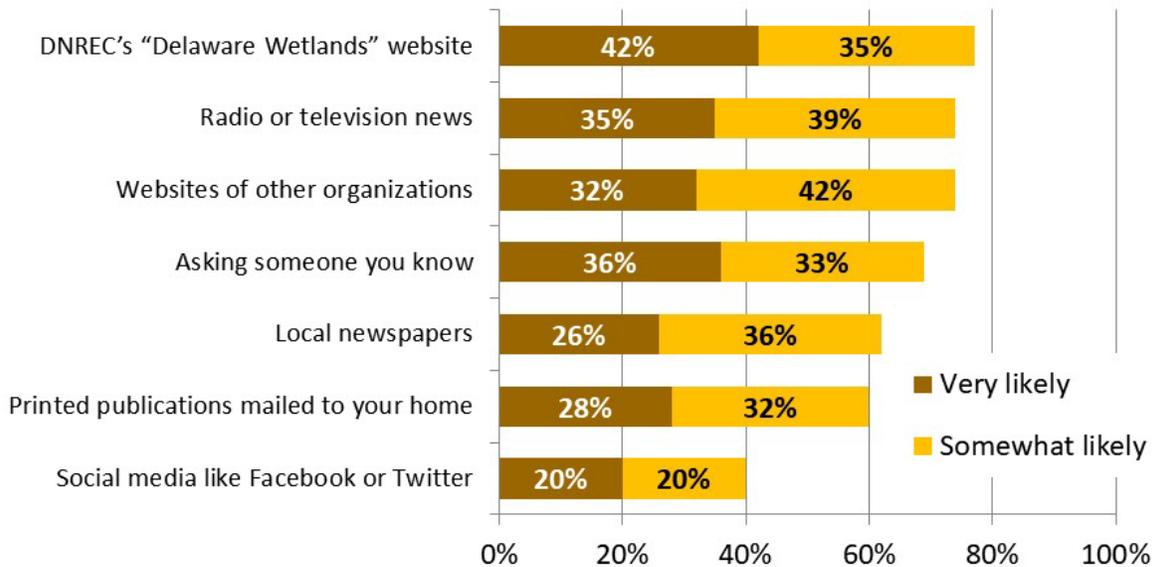
Rather than receiving this as a criticism, it is evident from the public’s basic affinity for wetlands and the significant impact of persuasive facts, that the real takeaway from this finding is a need for more resources for communicating with the public about wetlands. Awareness, knowledge, and positive impressions of wetlands could all be raised measurably with a better-resourced communications capability by Delaware Wetlands.

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### Sources of Information

The survey provided guidance on what communications channels would be most effective in reaching the public about wetlands and the condition of the natural environment. Seven information sources were tested using the scale “very likely, somewhat likely, or not likely to use each of these sources of information.”

## Reliance on Sources of Information



**If you wanted information about wetlands, or about the condition of the natural environment where you live, would you be very likely, somewhat likely, or not likely to use each of these sources of information?**

- The number one resource is DNREC’s Delaware Wetlands website, with 42% saying they are very likely and 35% somewhat likely to use it.
- Radio or television news is next, with 35% very likely and 39% somewhat likely to rely on those means for wetlands information.
- Websites of organizations other than DNREC also rank high, with 32% very likely and 42% somewhat likely to rely on them.
- Fourth on the list is asking someone you know. Thirty-six percent said they are very likely to ask someone they know for information about wetlands and the natural environment, and 33% would be somewhat likely. Note that on many topics, asking someone you know often ranks much higher on a list like this, frequently in the number one position. That may be an acknowledgement that this topic is more technical than many others and requires some expertise. Interestingly, though, people who live on more than one acre and have wet property are much *more* likely than average to rely on someone they know for wetlands information, suggesting that among that key subgroup, neighbor-to-neighbor networking is an important way to share information.

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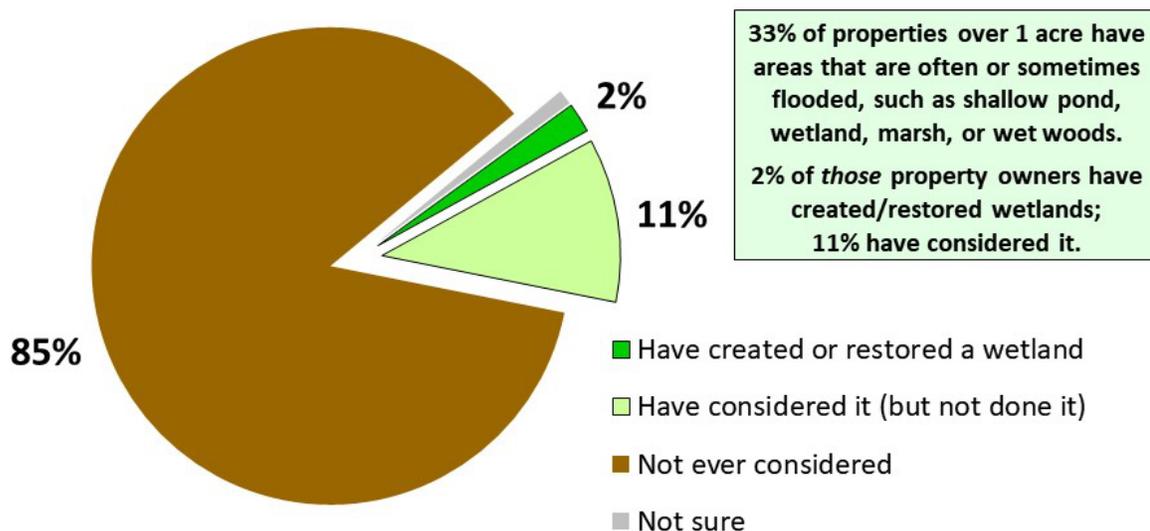
- Twenty-six percent are very likely to rely on newspapers, and 36% are somewhat likely. Contrary to conventional wisdom, there is no evidence in the survey of a relationship between older age and newspaper readership.
- Printed publications mailed to their home is very likely to be an information source for 28%, and somewhat likely for 32%. Renters were much more likely than homeowners to say they relied on mailed printed publications.
- Lowest on this list among the general public is social media, at 20% very likely and 20% somewhat likely. Note that increasingly today, people are looking for social media posts that are validated by their friends, not necessarily posts that come directly from an agency or organization. Social media reliance, as measured in this survey, is significantly higher among residents who are younger, and much higher among non-white residents, particularly Hispanics.

### Actions on One's Own Property

The survey sought to measure the past actions and future intentions of property owners who might be able to preserve or restore a wetland on their own property. Eighty-one percent of the survey respondents live in single-family detached homes. Of these 22% said they live on more than one acre, which amounts to 18% of the overall sample. It was this target audience of single-family residents on more than one acre that were asked several questions about wetlands on their own properties.

One-third (33%) of these residents on properties larger than an acre said they have areas on their property "that are often or sometimes flooded – even for a few weeks – with water such a shallow pond, wetland, marsh, or wet woods." This translates to 6% of the overall population.

## Created or Restored a Wetland Properties Over 1 Acre



Have you ever created or restored a wetland on your property, considered doing that, or not ever considered creating or restoring a wetland on your property?

Only a small fraction (2%) of property owners on more than one acre said they have created or restored a wetland on their property. Another 11% said they have considered but not done that. Taken

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together, this 13% subgroup of property owners over one acre who have restored wetlands or at least considered it are a very targeted group, amounting to just over 2% of Delaware’s total population.

Asked “What would you need to know, or what would encourage you to create or restore a wetland on your property?” many property owners focused on a need for technical assistance or information. Others felt that their own property was not suitable or wondered whether it was. A third group were concerned about the amount of money it would cost.

As a specific point of information, only 15% of residents on properties over one acre said they were aware that there are “incentive programs available that provide technical assistance and help people pay for wetland restoration on their property.” That number rose to only 19% among residents whose properties are sometimes or often flooded. More communicating could be done on this specific message point with such property owners.

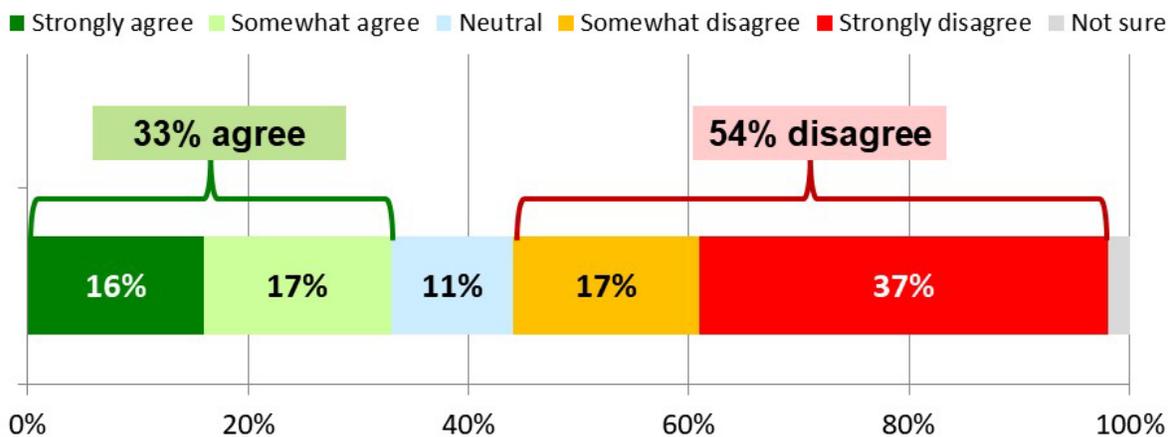
### Individual Engagement

The survey measured three key attitudes that have been shown to be predictors of engagement in environmental protection efforts by the general public. Each was measured on the traditional 5-point Likert scale, ranging from strongly agree to strongly disagree. The statements are:

- My actions contribute to water pollution where I live.
- I want to do more to help make the natural environment healthier.
- I could see myself attending meetings or speaking out publicly for a clean and healthy environment.

The first of these, “my actions contribute to water pollution where I live,” illustrates just how far we have to go to engage the public in understanding that water pollution is caused by all of us.

### My actions contribute to water pollution where I live.



Please tell me whether you strongly agree, somewhat agree, are neutral, somewhat disagree, or strongly disagree with each of these statements...

When presented with this statement, a majority of Delaware residents (54%) disagreed with the idea that they contribute to water pollution. Nearly four residents in ten (37%) *strongly* disagreed with this

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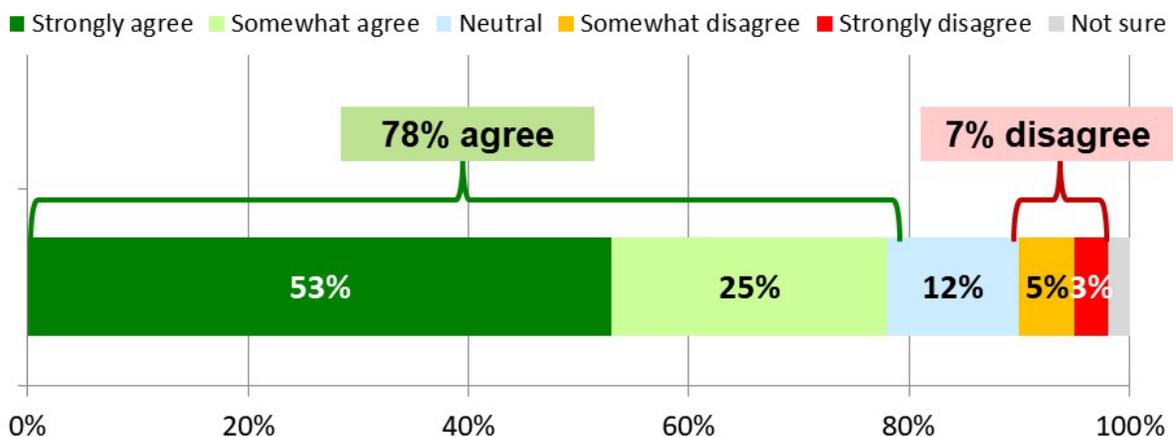
idea. Only one-third (33%) agreed that they are a cause of water pollution, and only 16% agreed strongly.

Delaware is not too different from its neighbors in this regard. In a recent statewide survey of Marylanders conducted by OpinionWorks, 48% disagreed that they contribute to water pollution, and 33% strongly. When residents across the full Chesapeake Bay watershed were asked, 51% disagreed that they contribute to water pollution, 35% strongly.

In Delaware, compared to the 54% disagreement overall, people were even more likely to say they do not contribute to water pollution if they live on more than one acre (66%) or are over age 65 (71%).

Despite a feeling on the part of many that they do not contribute to water pollution, 78% of the State's residents agreed that "I want to do more to help make the natural environment healthier," and 53% agree *strongly* with that idea. An almost insignificant number (7%) disagreed with this idea.

### I want to do more to help make the natural environment healthier.



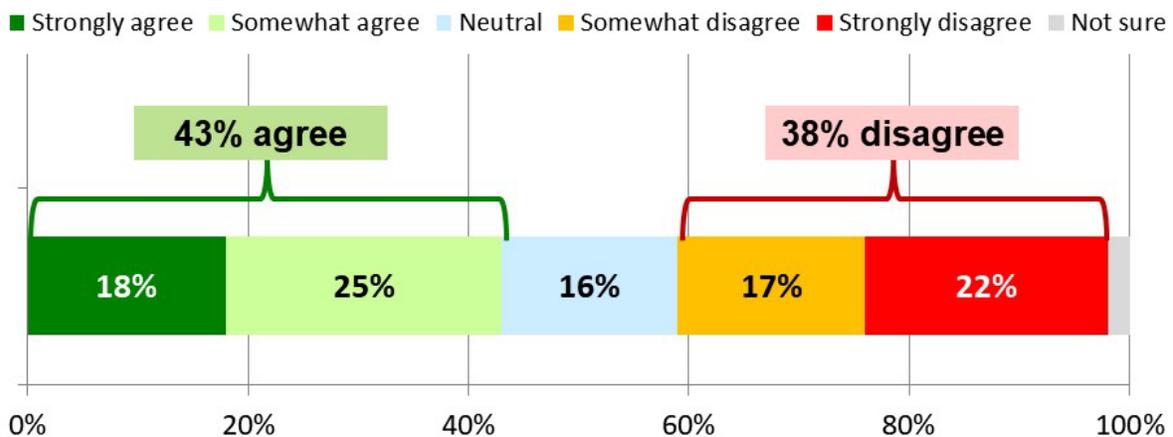
Please tell me whether you strongly agree, somewhat agree, are neutral, somewhat disagree, or strongly disagree with each of these statements...

Compared to the 53% overall who strongly agreed that they want to do more, the number jumped to 67% of African Americans and 61% of Hispanics. Also more prone to strongly agree are people who frequently or occasionally boat or paddle (62%), hike or camp (64%) or birdwatch (68%) – offering guidance on several constituency groups that could be engaged in efforts related to wetlands restoration and protection.

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A sizeable share of the public (43%) agreed that “I could see myself attending meetings or speaking out publicly for a clean and healthy environment.” Eighteen percent agreed strongly.

## I could see myself attending meetings or speaking out publicly for a clean and healthy environment.



Please tell me whether you strongly agree, somewhat agree, are neutral, somewhat disagree, or strongly disagree with each of these statements...

Compared to the 18% overall who strongly agreed that they could speak out, much more likely were women (23%), African-Americans (24%), urban residents (27%), and renters (32%).

### CONCLUSION

It has been a privilege to conduct this research for DNREC. This report contains detailed analysis and segmentation for many population subgroups to help develop and target future outreach. As DNREC’s staff prepares to take those steps, we stand ready to assist with interpretation of these survey findings as needed.

OpinionWorks LLC  
Annapolis, MD

**Section 2**  
**Survey Questionnaire**

N=600 interviews, stratified by county; September 17 – October 3, 2017; weighted results

**Introduction and Screening**

S3. Just to confirm, do you live in Delaware? (If yes): Do you live in Kent, New Castle, or Sussex County?

	<u>Weighted Numbers</u>
Kent (N=200).....	18%
New Castle (N=200).....	59%
Sussex (N=200) .....	23%
Lives outside Delaware/Names another county (Thank and terminate.)	
Not sure/Refused to say (Thank and terminate.)	

S4. What is your five-digit zip code at home? (Record zip for sample balancing.)

**Contact with the Outdoors**

1. Do you frequently, occasionally, rarely, or never do the following things? (Read and randomize list.)

- A. Canoe, kayak, sail, power boat, or paddleboard
- B. Fish, crab, or oyster
- C. Hunt
- D. Hike or camp
- E. Birdwatching

	A	B	C	D	E
Frequently	6%	7%	3%	8%	11%
Occasionally	17%	19%	8%	27%	16%
Top 2 (Frequently + Occasionally)	23%	26%	11%	35%	27%
Rarely	18%	13%	3%	19%	11%
Never	59%	61%	86%	46%	61%
(Do not read): Not sure/ Refused to say	*%	*%	*%	*%	*%

2. Would you describe the area where you live as...? (Read choices.)

Urban, in other words a city.....	13%
Suburban .....	38%
Small town .....	24%
Rural .....	22%
(Do not read): Not sure/ Refused to say .....	2%

N=600 interviews, stratified by county; September 17 – October 3, 2017; weighted results

**Perceptions of the Natural Environment**

3. Students are often given the grades of A, B, C, D, or Fail. If I were to ask you to grade the condition of the natural environment near you, things such as animal habitat, woodlands, and parks, on the A through F scale, where “A” is healthy and beautiful, and “F” is contaminated and ugly, what grade would you give it?

A .....	27%
B .....	40%
C .....	23%
D .....	6%
F (Fail).....	2%
Not sure/ Don't know .....	3%
GPA (Mean) .....	2.87

4. On that same A to F scale, how would you grade the water quality of the creek, river, or bay closest to your home, where “A” is healthy and clean, and “F” is contaminated and dirty?

A .....	14%
B .....	30%
C .....	28%
D .....	13%
F (Fail).....	7%
Not sure/ Don't know .....	7%
GPA (Mean) .....	2.33

5. Do you consider each of the following to be a very serious problem, somewhat serious problem, not much of a problem, or not a problem at all? (*Read and randomize list.*)

- A. Water pollution in Delaware’s creeks, rivers, and bays
- B. Extreme weather events
- C. Loss of natural habitat, such as wetlands and forests
- D. Sea level rise
- E. Local flooding in your neighborhood or community

	A	B	C	D	E
Very serious problem	25%	15%	24%	17%	6%
Somewhat serious problem	36%	21%	23%	15%	14%
<i>Total Problem (Very + Somewhat)</i>	<i>61%</i>	<i>37%</i>	<i>47%</i>	<i>33%</i>	<i>20%</i>
Not much of a problem	17%	28%	19%	17%	29%
Not a problem at all	14%	33%	28%	41%	51%
<i>(Do not read): Not sure/ Refused to say</i>	<i>8%</i>	<i>3%</i>	<i>6%</i>	<i>9%</i>	<i>1%</i>

N=600 interviews, stratified by county; September 17 – October 3, 2017; weighted results

**Perceptions of Wetlands**

6. Do you feel familiar or unfamiliar with the term “wetland?”

Familiar .....	85%
Unfamiliar .....	11%
Not sure .....	4%

*(Ask of random 1/2 of sample):*

7. In a few words or a sentence, just based on what you may know or have heard, how would you describe what a “wetland” is? *(Open-ended; see verbatim responses at end of questionnaire.)*

*(Do not read):*

Mentions something .....	93%
Nothing comes to mind/ Not sure/ Refused to say .....	7%

*(All):*

Let me read you this definition of a wetland and ask you a few more questions about it. A wetland is an area that is wet at least part of the year, but is not open water like a bay or an ocean. A wetland has plants and even trees that like being in water, and soil that is good at soaking up water.

8. Based on that definition, do you think having wetlands near where you live would be *(randomize):* [a good thing, a bad thing, (or) neutral]?

Good thing .....	49%
Neutral .....	34%
Bad thing .....	14%
Not sure .....	3%

*(If good thing):*

8A. Tell me why you said it would be a good thing. *(Open-ended; see verbatim responses at end of questionnaire.)*

*(Do not read):*

Mentions something .....	99%
Nothing comes to mind/ Not sure/ Refused to say .....	1%

*(If bad thing):*

8B. Tell me why you said it would be a bad thing. *(Open-ended; see verbatim responses at end of questionnaire.)*

*(Do not read):*

Mentions something .....	97%
Nothing comes to mind/ Not sure/ Refused to say .....	3%

N=600 interviews, stratified by county; September 17 – October 3, 2017; weighted results

(All):

9. Do you think the nearest wetland is within a mile of where you live, or more than a mile away? (All except not sure): Are you certain or not certain about that?

Within a mile, certain ..... 32%  
 Within a mile, not certain ..... 7%  
 Total Within a Mile ..... 39%  
 More than a mile away, not certain ..... 18%  
 More than a mile away, certain ..... 40%  
 Total Not Within a Mile ..... 57%  
 Not sure ..... 4%

10. I would like to read you a few facts about wetlands. For each one, tell me if it makes you feel much more positive about wetlands, somewhat more positive, or makes no difference to you. All of these statements are true, but if you just don't believe one, please say so. (Read and randomize statements.)

- A. Wetlands play an important role in filtering stormwater runoff, which improves water quality in local creeks, rivers, and bays.
- B. Wetlands create habitat for ducks, fish, turtles, and many other forms of wildlife.
- C. Wetlands generate income in Delaware from fishing and tourism.
- D. Wetlands can be beautiful, with flowering plants and trees in a natural setting.
- E. Wetlands soak up floodwater and protect against erosion.
- F. Wetlands play an important role in providing clean drinking water.

	A	B	C	D	E	F
Much more positive	59%	70%	39%	62%	58%	52%
Somewhat more positive	21%	17%	25%	19%	25%	21%
Total More Positive (Much + Somewhat)	80%	87%	64%	81%	83%	73%
Makes no difference	15%	11%	22%	17%	12%	18%
(Do not read): Don't believe it	1%	*%	6%	*%	2%	4%
(Do not read): More negative	*%	*%	1%	*%	*%	*%
(Do not read): Not sure	3%	1%	7%	2%	4%	5%

11. Having heard those facts, do you think having wetlands near where you live would be (randomize): [a good thing, a bad thing, (or) neutral]?

Good thing ..... 69%  
 Bad thing ..... 5%  
 Neutral ..... 25%  
 Not sure ..... 1%

N=600 interviews, stratified by county; September 17 – October 3, 2017; weighted results

**Trusted Messengers**

(All):

12. How much would you trust information you might get about conservation and protecting the natural environment from each of these groups? Please use a scale from 5 down to 1 where 5 means you would trust them a lot, and 1 means not at all. If you have not heard of them, just say so. (Read and randomize list.)

- A. Delaware Wetlands
- B. University of Delaware Cooperative Extension
- C. Delaware Nature Society
- D. Delaware Department of Natural Resources and Environmental Control, or “Denn-Rec”
- E. Delaware State Parks
- F. Ducks Unlimited
- G. The Nature Conservancy

	A	B	C	D	E	F	G
5 Trust them a lot	35%	46%	38%	46%	50%	25%	35%
4	14%	18%	17%	18%	24%	17%	13%
Top 2 (4 + 5)	49%	63%	55%	65%	74%	42%	48%
3	10%	7%	9%	16%	12%	14%	9%
2	2%	2%	2%	4%	3%	6%	2%
1 Trust them not at all	3%	4%	2%	6%	3%	4%	1%
Have not heard of them	32%	19%	27%	7%	4%	28%	35%
(Do not read): Not sure	5%	4%	4%	3%	3%	6%	5%
Mean	4.23	4.29	4.25	4.05	4.23	3.81	4.29

**Communicating with the Public**

13. In Delaware, the Department of Natural Resources and Environmental Control, also called DNREC (“Denn-Rec”), has a role in providing information to the public about wetlands. They do this through a program called “Delaware Wetlands.” Before taking this survey, did you know that DNREC had the role of communicating with the public about wetlands?

- Yes, knew that..... 31%
- No, did not know that..... 66%
- Not sure ..... 2%

14. Just based on what you know, do you think DNREC is doing a good job or could do a better job communicating with the public about wetlands?

- Good job ..... 18%
- Could do a better job ..... 73%
- Not sure ..... 9%

N=600 interviews, stratified by county; September 17 – October 3, 2017; weighted results

15. If you wanted information about wetlands, or about the condition of the natural environment where you live, would you be very likely, somewhat likely, or not likely to use each of these sources of information? (*Read and do not randomize list.*)

- A. Social media like Facebook or Twitter
- B. DNREC’s “Delaware Wetlands” website
- C. The websites of other organizations
- D. Printed publications mailed to your home
- E. Radio or television news
- F. Local newspapers
- G. Asking someone you know

	A	B	C	D	E	F	G
Very likely	20%	42%	32%	28%	35%	26%	36%
Somewhat likely	20%	35%	42%	32%	39%	36%	33%
<i>Total Likely (Very + Somewhat)</i>	<i>41%</i>	<i>77%</i>	<i>74%</i>	<i>60%</i>	<i>75%</i>	<i>62%</i>	<i>70%</i>
Not likely	58%	20%	21%	36%	24%	36%	28%
<i>(Do not read): Not sure</i>	<i>2%</i>	<i>3%</i>	<i>5%</i>	<i>4%</i>	<i>2%</i>	<i>2%</i>	<i>2%</i>

**Your Own Property**

16. Is your home single-family detached; a rowhouse, townhouse, or duplex; or a multi-family building like an apartment or condo?

- Single-family detached ..... 81%
- Rowhouse/ Townhouse/ Duplex/ Anything attached..... 11%
- Multi-family ..... 8%
- Not sure/ Refused ..... 1%

*(If single-family detached):*

17. Is your yard or property an acre or less in size, or is it more than an acre? (*If more*): About how many acres is it?

- Acre or less ..... 75%
- More than an acre (*Key in number of acres; round to nearest whole number.*)..... 22%
  - 1 to 2 acres ..... 13%
  - 3 to 5 acres ..... 4%
  - 6 or more acres ..... 4%
- Not sure/ Refused ..... 3%

*(If more than an acre):*

18. Do you have any areas on your property that are often or sometimes flooded – even for a few weeks – with water such a shallow pond, wetland, marsh, or wet woods?

- Yes..... 33%
- No ..... 67%
- Not sure/ Refused ..... \*%

N=600 interviews, stratified by county; September 17 – October 3, 2017; weighted results

(If more than an acre):

19. Have you ever created or restored a wetland on your property, considered doing that, or not ever considered creating or restoring a wetland on your property?

Have created or restored a wetland..... 2%  
 Have considered it (but not done it)..... 11%  
 Not ever considered ..... 85%  
 Not sure/Refused ..... 1%

(If considered it but not done it, not ever considered, or not sure):

20. What would you need to know, or what would encourage you to create or restore a wetland on your property? (Probe briefly if needed. Open-ended; see verbatim responses at end of questionnaire.)

(Do not read):

Mentions something ..... 81%  
 Nothing comes to mind/ Not sure/ Refused to say ..... 19%

(If more than an acre):

21. Were you aware or not aware that there are incentive programs available that provide technical assistance and help people pay for wetland restoration on their property?

Aware..... 15%  
 Not aware..... 83%  
 Not sure ..... 2%

**Individual Engagement**

(All):

22. Please tell me if you strongly disagree, somewhat disagree, are neutral, somewhat agree, or strongly agree with these statements. (Read and randomize statements.)

- A. My actions contribute to water pollution where I live.
- B. I want to do more to help make the natural environment healthier.
- C. I could see myself attending meetings or speaking out publicly for a clean and healthy environment.

	A	B	C
Strongly agree	16%	53%	18%
Somewhat agree	17%	25%	25%
<i>Total Agree</i>	<i>33%</i>	<i>78%</i>	<i>43%</i>
Neutral	11%	12%	16%
Somewhat disagree	17%	5%	17%
Strongly disagree	37%	3%	22%
<i>Total Disagree</i>	<i>54%</i>	<i>7%</i>	<i>38%</i>
(Do not read): Not sure/ Refused	2%	2%	2%

N=600 interviews, stratified by county; September 17 – October 3, 2017; weighted results

**Classification**

(All):

C1. These last few questions are to classify the survey only. What is your age? (Read categories until stopped.)

Less than 35 .....	20%
35 to 49 .....	26%
50 to 64 .....	32%
65 or more.....	21%
(Do not read): Not sure/ Refused to say .....	1%

C2. What is the last grade in school that you completed?

(Do not read list):

Less than 12 <sup>th</sup> grade.....	3%
12 <sup>th</sup> grade/High school diploma .....	25%
Some college/Associate's degree.....	27%
Four-year degree/Bachelor's degree .....	27%
Graduate work/Advanced degree .....	16%
Not sure/Refused .....	2%

C3. Do you own or rent your home?

Own .....	80%
Rent .....	17%
Not sure .....	3%

C4. At home, do you get your drinking water from a private well, or does it come from your local city, county, or municipality?

Well.....	32%
City/ County/ Municipality .....	65%
Not sure/ Refused .....	3%

C5. Do you most closely identify your race or ethnicity as (randomize): [White, African-American or Black, Hispanic or Latino, Asian, Native American], or some other? Please mention any that apply. (Allow multiple.)

White.....	68%
African-American/Black .....	24%
Hispanic/Latino/Latina .....	3%
Asian .....	2%
Native American.....	2%
Other (Specify.).....	1%
Not sure/ Refused .....	4%

C6. (Not asked; by observation): Gender

Male .....	46%
Female .....	54%

That's all the questions I have for you. Thank you for your time. Goodbye.