



WATER QUALITY AND NORTH CAROLINA FISHERIES

SURVEY RESULTS OF THE NORTH CAROLINA PUBLIC, PART 1 OF 2

COASTAL CAROLINA RIVERWATCH, WATER QUALITY FOR FISHERIES PROGRAM

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Water Quality and North Carolina Fisheries

Survey Results of the North Carolina Public

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Water quality conditions affect public health for all North Carolina residents. For those who enjoy North Carolina’s oceans and waterways for swimming or other recreational activities, contaminated water from sewage, animal waste, industrial pollutants, and stormwater runoff can cause illness. Other threats to water quality, such as plastic ingestion by fish, can impact marine life ecosystems, including the seafood that people eat. While experts may debate the extent and severity of these threats to water quality and public health, what do North Carolina residents think about these issues?

To answer that question, Coastal Carolina Riverwatch, with assistance from East Carolina University’s (ECU) Center for Survey Research (CSR), conducted a survey of North Carolina adults (18 years of age or older). The results from the survey, presented below, include 1,109 respondents from across the state. The survey includes an oversample of coastal county residents (N=559) to allow for statistical comparisons between coastal and non-coastal residents (non-coastal N=550). Respondents completed the survey either online (N=497) through a panel provided by Lucid (see <https://luc.id/>), or by phone (N=612) through an Interactive Voice Response (IVR) system. The survey began on June 1 and ended on June 12, 2021. The CSR statistically weighted the data by age, education, race, and gender to ensure the results are representative of the North Carolina population.

Key Findings

- ▶ Coastal residents and those who do not live on the coast (i.e., non-coastal residents) are significantly more positive than negative about the cleanliness of water from North Carolina waterways and coasts (see Table 1).
 - > Approximately 51% of coastal residents answered “very good” or “good” compared to 15% who answered “poor” or “very poor.”
 - > Non-coastal residents offered similar assessments, with 55% answering “very good” or “good” compared to 16% who answered “poor” or “very poor.”

Table 1. How would you rate the overall cleanliness of the water from North Carolina's waterways and coasts?

	Coastal residents	Non-coastal residents
Very good	25%	26%
Good	26%	29%
Fair	28%	23%
Poor	9%	6%
Very poor	6%	7%
Not sure / Don't know	6%	9%

- ▶ Coastal residents and non-coastal residents have mixed opinions on whether they have noticed any changes to the cleanliness of water from North Carolina's waterways and coasts over the past five years (see Table 2a and Table 2b); however, of those who have noticed a change, a majority answered that water cleanliness has gotten "worse" as opposed to "better."
 - > Specifically, of those who noticed a change in overall water cleanliness, 61% of coastal residents and 53% of non-coastal residents answered that overall water cleanliness has gotten worse.

Table 2a. Compared to five years ago, have you noticed any changes to the overall cleanliness of the water from North Carolina's waterways and coasts?

	Coastal residents	Non-coastal residents
Yes	39%	34%
No	35%	34%
Not sure / Don't know	27%	32%

Table 2b. If respondents answered "yes" to the question above: Compared to five years ago, would you say that the overall cleanliness of the water from North Carolina's waterways and coasts has gotten better or worse?

	Coastal residents	Non-coastal residents
Better	39%	47%
Worse	61%	53%

- ▶ On the same question, but assessing change in water cleanliness over a ten-year period rather than five, the results in Table 3b (see below) show that more non-coastal residents assess water cleanliness as having gotten "better" (55%) rather than "worse" (45%) whereas more coastal residents see water cleanliness as having gotten "worse" (58%) as opposed to "better" (42%).

Table 3a. Compared to ten years ago, have you noticed any changes to the overall cleanliness of the water from North Carolina's waterways and coasts?

	Coastal residents	Non-coastal residents
Yes	43%	36%
No	29%	28%
Not sure / Don't know	28%	36%

Table 3b. If answered “yes” to the question above: Compared to ten years ago, would you say that the overall cleanliness of the water from North Carolina's waterways and coasts has gotten better or worse?

	Coastal residents	Non-coastal residents
Better	42%	55%
Worse	58%	45%

- ▶ When asked to assess possible threats to water quality, coastal residents and non-coastal residents were most likely to answer that *contamination from industrial pollutants* posed a very serious threat, followed by *contamination from agricultural runoff* (see Table 4).

Table 4. Below is a list of possible threats to water quality. For each one, please answer how serious a problem the threat listed is to the cleanliness of the water from North Carolina's waterways and coasts.

*** Percentages below reflect those who answered “Very serious”**

	Coastal residents	Non-coastal residents
<i>Contamination from industrial pollutants.</i>	61%	54%
<i>Contamination from agricultural runoff from fertilizers, pesticides, or animal waste.</i>	49%	53%
<i>Contamination from municipal wastewater treatment plants.</i>	43%	44%
<i>Contamination from stormwater runoff from roads and highways.</i>	42%	44%
<i>Contamination from septic systems.</i>	37%	40%

- ▶ A significant majority of North Carolina residents – both coastal residents (75%) and non-coastal residents (64%) – “somewhat” or “strongly agree” that seafood and shellfish caught in North Carolina are safe to eat (see Table 5).
 - > Coastal residents are more likely to “strongly agree” that seafood and shellfish are safe to eat (43%) as compared to non-coastal residents (29%).
 - > Non-coastal residents were more than twice as likely to answer “not sure” or “don’t know” (14%) as compared to coastal residents (6%).

Table 5. Regardless of whether or not you eat seafood or shellfish caught in North Carolina, please indicate how strongly you agree or disagree with the following statement:

Seafood and shellfish caught in North Carolina is safe to eat.

	Coastal resident	Non-coastal resident
Strongly agree	43%	29%
Somewhat agree	32%	35%
Neither agree nor disagree	14%	15%
Somewhat disagree	3%	4%
Strongly disagree	2%	3%
Not sure / Don't know	6%	14%

- ▶ A majority of North Carolina coastal (52%) and non-coastal residents (52%) “strongly agree” that plastic pollution absorbed or ingested by fish poses a serious risk to North Carolina’s seafood industry (see Table 6).

Table 6. Regardless of whether or not you eat seafood or shellfish caught in North Carolina, please indicate how strongly you agree or disagree with the following statement:

Plastic pollution absorbed or ingested by fish poses a serious risk to North Carolina's seafood industry.

	Coastal resident	Non-coastal resident
Strongly agree	52%	52%
Somewhat agree	28%	24%
Neither agree nor disagree	8%	10%
Somewhat disagree	2%	3%
Strongly disagree	2%	2%
Not sure / Don't know	8%	9%

- ▶ Both coastal and non-coastal residents report having modest levels of knowledge about issues affecting water quality (see Table 7).

Table 7. How knowledgeable would you rate yourself on each of the following issues?

** Percentages below reflect those who answered “Very knowledgeable”*

	Coastal residents	Non-coastal residents
<i>The effects of plastic pollution on the supply of fish and shellfish.</i>	29%	22%
<i>The effects of wastewater treatment on water quality.</i>	28%	23%
<i>The effects of industrial pollutants on water quality.</i>	25%	22%
<i>The effects of septic systems on water quality.</i>	24%	22%
<i>The effects of stormwater runoff from roads and highways on water quality.</i>	19%	18%
<i>The effects of agricultural runoff from fertilizers, pesticides, or animal waste on water quality.</i>	18%	20%

- ▶ Of those who live on the coast, there are significant differences in how high knowledge, medium knowledge, and low knowledge residents perceive water quality issues.¹
 - > Those who are highly knowledgeable about water quality issues are most likely to perceive agricultural runoff, stormwater runoff, industrial pollutants, wastewater, and septic system contamination as serious threats to water quality (see Table 8).

¹ High, medium, and low knowledge are categories based on an additive index derived from the six survey items show in Table 7. For each item, 1 equals not knowledgeable at all, 2 equals somewhat knowledgeable, and 3 equals very knowledgeable. Taken together for the six items, the knowledge index ranged from a low score of 6 to a high score of 18. The Cronbach’s Alpha (a commonly used measure of reliability) is .877. A score of .6 or more is considered a robust measure. Those in the low knowledge category scored 6 to 10, those in the medium knowledge category scored 11 to 13, and those in the high knowledge category scored 14 to 18.

Table 8. Below is a list of possible threats to water quality. For each one, please answer how serious a problem the threat listed is to the cleanliness of the water from North Carolina's waterways and coasts.

** Percentages below reflect those who answered "Very serious"*

	Low knowledge	Medium knowledge	High knowledge
<i>Contamination from industrial pollutants.</i>	44%	61%	75%
<i>Contamination from agricultural runoff from fertilizers, pesticides, or animal waste.</i>	41%	51%	53%
<i>Contamination from municipal wastewater treatment plants.</i>	35%	44%	51%
<i>Contamination from stormwater runoff from roads and highways.</i>	33%	42%	51%
<i>Contamination from septic systems.</i>	29%	31%	53%

- Highly knowledgeable residents from coastal North Carolina are also more likely than those less knowledgeable to "strongly agree" that seafood and shellfish caught in North Carolina are safe to eat (see Table 9).

Table 9. Regardless of whether or not you eat seafood or shellfish caught in North Carolina, please indicate how strongly you agree or disagree with the following statement:

Seafood and shellfish caught in North Carolina is safe to eat.

	Low knowledge	Medium knowledge	High knowledge
Strongly agree	39%	38%	49%
Somewhat agree	24%	37%	32%
Neither agree nor disagree	18%	15%	10%
Somewhat disagree	1%	3%	5%
Strongly disagree	1%	3%	3%
Not sure / Don't know	17%	4%	1%

- ▶ Highly knowledgeable residents from coastal North Carolina are more likely than those less knowledgeable to “strongly” or “somewhat agree” that plastic pollution absorbed or ingested by fish poses a serious risk to North Carolina’s seafood industry (see Table 10).

Table 10. Regardless of whether or not you eat seafood or shellfish caught in North Carolina, please indicate how strongly you agree or disagree with the following statement:

Plastic pollution absorbed or ingested by fish poses a serious risk to North Carolina's seafood industry.

	Low knowledge	Medium knowledge	High knowledge
Strongly agree	41%	55%	58%
Somewhat agree	31%	25%	29%
Neither agree nor disagree	6%	13%	4%
Somewhat disagree	3%	1%	2%
Strongly disagree	0%	0%	6%
Not sure / Don't know	19%	6%	1%

Appendix. Topline Results and Open-Ended Comments

I. Topline Results for Coastal Residents

How would you rate the overall cleanliness of the water from North Carolina's waterways and coasts?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very good	137	24.5	26.2	26.2
	2 Good	147	26.2	28.0	54.2
	3 Fair	156	27.9	29.8	84.0
	4 Poor	52	9.3	9.9	93.9
	5 Very poor	32	5.7	6.1	100.0
	Total	523	93.6	100.0	
Missing	6 Not sure or don't know	36	6.4		
Total		559	100.0		

Compared to five years ago, have you noticed any changes to the overall cleanliness of the water from North Carolina's waterways and coasts?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	216	38.7	52.7	52.7
	2 No	194	34.7	47.3	100.0
	Total	410	73.3	100.0	
Missing	3 Not sure or don't know	149	26.7		
Total		559	100.0		

Compared to five years ago, would you say that the overall cleanliness of the water from North Carolina's waterways and coasts has gotten better or worse?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Better	87	15.6	38.9	38.9
	2 Worse	137	24.5	61.1	100.0
	Total	224	40.1	100.0	
Missing	System	335	59.9		
Total		559	100.0		

Compared to ten years ago, have you noticed any changes to the overall cleanliness of the water from North Carolina's waterways and coasts?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	242	43.3	59.8	59.8
	2 No	163	29.1	40.2	100.0
	Total	405	72.4	100.0	
Missing	3 Not sure or don't know	154	27.6		
Total		559	100.0		

Compared to ten years ago, would you say that the overall cleanliness of the water from North Carolina's waterways and coasts has gotten better or worse?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Better	103	18.4	42.4	42.4
	2 Worse	139	24.9	57.6	100.0
	Total	242	43.3	100.0	
Missing	System	317	56.7		
Total		559	100.0		

Below is a list of possible threats to water quality. For each one, please answer how serious a problem the threat listed is to the cleanliness of the water from North Carolina's waterways and coasts. - Contamination from agricultural runoff from fertilizers, pesticides, or animal waste

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very serious	274	49.0	54.1	54.1
	2 Somewhat serious	173	31.0	34.3	88.3
	3 Not at all serious	59	10.6	11.7	100.0
	Total	506	90.6	100.0	
Missing	4 Not sure / don't know	52	9.4		
	System	0	.0		
	Total	53	9.4		
Total		559	100.0		

Below is a list of possible threats to water quality. For each one, please answer how serious a problem the threat listed is to the cleanliness of the water from North Carolina's waterways and coasts. - Contamination from stormwater runoff from roads and highways.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very serious	237	42.4	46.3	46.3
	2 Somewhat serious	215	38.4	41.9	88.3
	3 Not at all serious	60	10.7	11.7	100.0
	Total	511	91.5	100.0	
Missing	4 Not sure / don't know	48	8.5		
Total		559	100.0		

Below is a list of possible threats to water quality. For each one, please answer how serious a problem the threat listed is to the cleanliness of the water from North Carolina's waterways and coasts. - Contamination from industrial pollutants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very serious	339	60.6	66.2	66.2
	2 Somewhat serious	121	21.7	23.6	89.8
	3 Not at all serious	52	9.3	10.2	100.0
	Total	512	91.6	100.0	
Missing	4 Not sure / don't know	47	8.3		
	System	0	.0		
	Total	47	8.4		
Total		559	100.0		

Below is a list of possible threats to water quality. For each one, please answer how serious a problem the threat listed is to the cleanliness of the water from North Carolina's waterways and coasts. - Contamination from municipal wastewater treatment plants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very serious	242	43.3	48.5	48.5
	2 Somewhat serious	178	31.9	35.6	84.1
	3 Not at all serious	79	14.2	15.9	100.0
	Total	500	89.4	100.0	
Missing	4 Not sure / don't know	59	10.6		
Total		559	100.0		

Below is a list of possible threats to water quality. For each one, please answer how serious a problem the threat listed is to the cleanliness of the water from North Carolina's waterways and coasts. - Contamination from septic systems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very serious	209	37.4	42.9	42.9
	2 Somewhat serious	173	30.9	35.5	78.4
	3 Not at all serious	105	18.8	21.6	100.0
	Total	487	87.2	100.0	
Missing	4 Not sure / don't know	66	11.8		
	System	6	1.0		
	Total	72	12.8		
Total		559	100.0		

Do you ever eat seafood or shellfish caught in North Carolina?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	433	77.4	77.4	77.4
	2 No	126	22.6	22.6	100.0
Total		559	100.0	100.0	

How often do you eat seafood or shellfish caught in North Carolina?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Less than once a week	245	43.9	56.7	56.7
	2 Once a week	146	26.1	33.8	90.4
	3 Two to three times a week	32	5.8	7.5	97.9
	4 More than three times a week	9	1.6	2.1	100.0
	Total	433	77.4	100.0	
Missing	System	126	22.6		
Total		559	100.0		

Regardless of whether or not you eat seafood or shellfish caught in North Carolina, please indicate how strongly you agree or disagree with the following statement:

Seafood and shellfish caught in North Carolina is safe to eat.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly agree	238	42.6	45.4	45.4
	2 Somewhat agree	177	31.8	33.9	79.3
	3 Neither agree nor disagree	77	13.8	14.7	94.0
	4 Somewhat disagree	18	3.2	3.5	97.5
	5 Strongly disagree	13	2.4	2.5	100.0
	Total	524	93.7	100.0	
Missing	6 Not sure or don't know	35	6.3		
Total		559	100.0		

Again, please indicate how strongly you agree or disagree with the following statement:

Plastic pollution absorbed or ingested by fish poses a serious risk to North Carolina's seafood industry.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly agree	293	52.3	56.7	56.7
	2 Somewhat agree	156	27.8	30.2	86.9
	3 Neither agree nor disagree	48	8.5	9.2	96.1
	4 Somewhat disagree	9	1.7	1.8	97.9
	5 Strongly disagree	11	1.9	2.1	100.0
	Total	516	92.3	100.0	
Missing	6 Not sure or don't know	43	7.7		
Total		559	100.0		

Do you ever swim in the ocean or other coastal waters in North Carolina during the summertime?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	300	53.8	53.8	53.8
	2 No	259	46.2	46.2	100.0
Total		559	100.0	100.0	

Do you ever fish in the ocean or other coastal waters in North Carolina?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	284	50.9	50.9	50.9
	2 No	275	49.1	49.1	100.0
	Total	559	100.0	100.0	

Do you ever go boating on the North Carolina waters?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	299	53.4	53.4	53.4
	2 No	260	46.6	46.6	100.0
	Total	559	100.0	100.0	

How knowledgeable would you rate yourself on each of the following issues? - The effects of agricultural runoff from fertilizers, pesticides, or animal waste on water quality.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very knowledgeable	103	18.3	18.4	18.4
	2 Somewhat knowledgeable	320	57.3	57.5	75.9
	3 Not at all knowledgeable	135	24.1	24.1	100.0
	Total	558	99.7	100.0	
Missing	System	1	.3		
Total		559	100.0		

How knowledgeable would you rate yourself on each of the following issues? - The effects of stormwater runoff from roads and highways on water quality.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very knowledgeable	109	19.4	19.4	19.4
	2 Somewhat knowledgeable	320	57.3	57.3	76.7
	3 Not at all knowledgeable	130	23.3	23.3	100.0
	Total	559	100.0	100.0	

How knowledgeable would you rate yourself on each of the following issues? - The effects of industrial pollutants on water quality.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very knowledgeable	142	25.5	25.5	25.5
	2 Somewhat knowledgeable	284	50.8	50.8	76.2
	3 Not at all knowledgeable	133	23.8	23.8	100.0
	Total	559	100.0	100.0	

How knowledgeable would you rate yourself on each of the following issues? - The effects of wastewater treatment on water quality.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very knowledgeable	156	27.8	27.8	27.8
	2 Somewhat knowledgeable	270	48.2	48.2	76.1
	3 Not at all knowledgeable	134	23.9	23.9	100.0
	Total	559	100.0	100.0	

How knowledgeable would you rate yourself on each of the following issues? - The effects of septic systems on water quality.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very knowledgeable	131	23.5	23.5	23.5
	2 Somewhat knowledgeable	276	49.3	49.3	72.9
	3 Not at all knowledgeable	152	27.1	27.1	100.0
	Total	559	99.9	100.0	
Missing	System	0	.1		
	Total	559	100.0		

How knowledgeable would you rate yourself on each of the following issues? - The effects of plastic pollution on the supply of fish and shellfish.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very knowledgeable	159	28.4	28.5	28.5
	2 Somewhat knowledgeable	285	50.9	51.1	79.6
	3 Not at all knowledgeable	114	20.4	20.4	100.0
	Total	557	99.7	100.0	
Missing	System	2	.3		
Total		559	100.0		

Do you use the local newspaper to keep informed about coastal water quality issues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	202	36.1	36.1	36.1
	2 No	357	63.9	63.9	100.0
	Total	559	100.0	100.0	

Do you use the local television news to keep informed about coastal water quality issues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	359	64.2	64.2	64.2
	2 No	200	35.8	35.8	100.0
	Total	559	100.0	100.0	

Do you use talk radio programs to keep informed about coastal water quality issues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	170	30.5	30.5	30.5
	2 No	389	69.5	69.5	100.0
	Total	559	100.0	100.0	

Do you use social media sources such as Facebook or Twitter to keep informed about coastal water quality issues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	201	36.0	36.0	36.0
	2 No	358	64.0	64.0	100.0
	Total	559	100.0	100.0	

Do you speak with friends or family to keep informed about coastal water quality issues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	287	51.3	51.3	51.3
	2 No	272	48.7	48.7	100.0
	Total	559	100.0	100.0	

Do you use any additional sources not mentioned in the previous questions to keep informed about coastal water quality issues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	125	22.4	22.4	22.4
	2 No	434	77.6	77.6	100.0
	Total	559	100.0	100.0	

What sources do you use to keep informed about coastal water quality issues? (Please select all boxes that apply.) - Other sources. Please specify: - Text

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		550	98.4	98.4	98.4
	A professor i somewhat keep in contact with tells me frequently enough about coastal pollution. I also get my information from online websites.	1	.1	.1	98.5
	Advisories	0	.1	.1	98.6
	Agriculture Extension Agents	0	.1	.1	98.6
	An educated person I know personally that is qualified within or near that type of field of study	1	.2	.2	98.8

environmental websites	1	.1	.1	98.9
Family and friends	1	.3	.3	99.1
Government agencies, scientific papers	0	.0	.0	99.2
I work on the water	1	.2	.2	99.3
Internet search	0	.0	.0	99.4
Internet searches	1	.1	.1	99.5
NC Coastal Federation	0	.1	.1	99.6
NC WRC	0	.0	.0	99.6
NPR	1	.1	.1	99.7
On line websites	1	.2	.2	99.9
Personal observations	0	.1	.1	99.9
Spend time at the beaches and local waterways, I can see with my own eyes	0	.1	.1	100.0
Total	559	100.0	100.0	

For statistical purposes only, which category best describes you?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Hispanic or Latino of any race	36	6.5	6.7	6.7
	2 White or Caucasian	386	69.1	71.7	78.4
	3 Black or African American	92	16.5	17.1	95.5
	4 Asian or Asian American	7	1.2	1.2	96.8
	5 Some other race or ethnicity, or multiple races	17	3.1	3.2	100.0
	Total	539	96.4	100.0	
Missing	6 Prefer not to answer	20	3.6		
Total		559	100.0		

What is your age range?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 18 to 24 years old	78	13.9	14.4	14.4
	2 25 to 34 years old	87	15.5	16.0	30.4
	3 35 to 44 years old	77	13.7	14.2	44.6
	4 45 to 54 years old	79	14.1	14.6	59.2
	5 55 to 64 years old	92	16.5	17.1	76.3
	6 65 years or older	128	22.9	23.7	100.0
	Total	540	96.6	100.0	
Missing	7 Prefer not to answer	19	3.4		
Total		559	100.0		

What is the highest level of school you have completed or the highest degree you have received?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 High school graduate, GED certificate, or did not finish high school	211	37.7	39.1	39.1
	2 Some college or a 2-year associate degree	193	34.6	35.9	75.0
	3 4-year college or university degree	89	16.0	16.6	91.6
	4 Postgraduate degree	45	8.1	8.4	100.0
	Total	539	96.4	100.0	
Missing	5 Prefer not to answer	20	3.6		
Total		559	100.0		

Are you male or female, or do you prefer another description?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Male	271	48.4	49.4	49.4
	2 Female	274	49.0	50.1	99.5
	3 Prefer another description	3	.5	.5	100.0
	Total	547	97.9	100.0	
Missing	4 Prefer not to answer	12	2.1		
Total		559	100.0		

II. Topline Results for Non-Coastal Residents

How would you rate the overall cleanliness of the water from North Carolina's waterways and coasts?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very good	143	26.1	28.6	28.6
	2 Good	157	28.6	31.3	59.9
	3 Fair	126	22.8	25.1	85.0
	4 Poor	35	6.4	7.0	92.0
	5 Very poor	40	7.3	8.0	100.0
	Total	501	91.1	100.0	
Missing	6 Not sure or don't know	49	8.9		
Total		550	100.0		

Compared to five years ago, have you noticed any changes to the overall cleanliness of the water from North Carolina's waterways and coasts?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	187	33.9	49.6	49.6
	2 No	189	34.4	50.4	100.0
	Total	376	68.3	100.0	
Missing	3 Not sure or don't know	174	31.7		
Total		550	100.0		

Compared to five years ago, would you say that the overall cleanliness of the water from North Carolina's waterways and coasts has gotten better or worse?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Better	87	15.9	46.7	46.7
	2 Worse	99	18.1	53.3	100.0
	Total	187	33.9	100.0	
Missing	System	363	66.1		
Total		550	100.0		

Compared to ten years ago, have you noticed any changes to the overall cleanliness of the water from North Carolina's waterways and coasts?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	198	36.0	56.1	56.1
	2 No	155	28.2	43.9	100.0
	Total	353	64.3	100.0	
Missing	3 Not sure or don't know	197	35.7		
Total		550	100.0		

Compared to ten years ago, would you say that the overall cleanliness of the water from North Carolina's waterways and coasts has gotten better or worse?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Better	108	19.7	54.7	54.7
	2 Worse	90	16.3	45.3	100.0
	Total	198	36.0	100.0	
Missing	System	352	64.0		
Total		550	100.0		

Below is a list of possible threats to water quality. For each one, please answer how serious a problem the threat listed is to the cleanliness of the water from North Carolina's waterways and coasts. - Contamination from agricultural runoff from fertilizers, pesticides, or animal waste

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very serious	293	53.3	61.9	61.9
	2 Somewhat serious	141	25.7	29.8	91.8
	3 Not at all serious	39	7.1	8.2	100.0
	Total	473	86.0	100.0	
Missing	4 Not sure / don't know	77	14.0		
Total		550	100.0		

Below is a list of possible threats to water quality. For each one, please answer how serious a problem the threat listed is to the cleanliness of the water from North Carolina's waterways and coasts. - Contamination from stormwater runoff from roads and highways

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very serious	242	43.9	49.3	49.3
	2 Somewhat serious	208	37.8	42.4	91.7
	3 Not at all serious	41	7.4	8.3	100.0
	Total	490	89.2	100.0	
Missing	4 Not sure / don't know	60	10.8		
Total		550	100.0		

Below is a list of possible threats to water quality. For each one, please answer how serious a problem the threat listed is to the cleanliness of the water from North Carolina's waterways and coasts. - Contamination from industrial pollutants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very serious	299	54.4	61.1	61.1
	2 Somewhat serious	154	28.0	31.5	92.6
	3 Not at all serious	36	6.6	7.4	100.0
	Total	490	89.0	100.0	
Missing	4 Not sure / don't know	60	10.8		
	System	1	.1		
	Total	60	11.0		
Total		550	100.0		

Below is a list of possible threats to water quality. For each one, please answer how serious a problem the threat listed is to the cleanliness of the water from North Carolina's waterways and coasts. - Contamination from municipal wastewater treatment plants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very serious	241	43.8	51.9	51.9
	2 Somewhat serious	169	30.7	36.4	88.3
	3 Not at all serious	54	9.9	11.7	100.0
	Total	464	84.3	100.0	
Missing	4 Not sure / don't know	86	15.7		
Total		550	100.0		

Below is a list of possible threats to water quality. For each one, please answer how serious a problem the threat listed is to the cleanliness of the water from North Carolina's waterways and coasts. - Contamination from septic systems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very serious	220	39.9	48.6	48.6
	2 Somewhat serious	150	27.2	33.1	81.6
	3 Not at all serious	83	15.1	18.4	100.0
	Total	452	82.2	100.0	
Missing	4 Not sure / don't know	95	17.3		
	System	3	.5		
	Total	98	17.8		
Total		550	100.0		

Do you ever eat seafood or shellfish caught in North Carolina?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	366	66.5	66.5	66.5
	2 No	184	33.5	33.5	100.0
Total		550	100.0	100.0	

How often do you eat seafood or shellfish caught in North Carolina?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Less than once a week	263	47.9	71.9	71.9
	2 Once a week	73	13.3	20.1	92.0
	3 Two to three times a week	17	3.1	4.7	96.7
	4 More than three times a week	12	2.2	3.3	100.0
	Total	366	66.5	100.0	
Missing	System	184	33.5		
Total		550	100.0		

Regardless of whether or not you eat seafood or shellfish caught in North Carolina, please indicate how strongly you agree or disagree with the following statement:

Seafood and shellfish caught in North Carolina is safe to eat.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly agree	160	29.0	33.9	33.9
	2 Somewhat agree	193	35.0	40.9	74.8
	3 Neither agree nor disagree	84	15.2	17.8	92.6
	4 Somewhat disagree	19	3.5	4.1	96.7
	5 Strongly disagree	15	2.8	3.3	100.0
	Total	471	85.7	100.0	
Missing	6 Not sure or don't know	79	14.3		
Total		550	100.0		

Again, please indicate how strongly you agree or disagree with the following statement:

Plastic pollution absorbed or ingested by fish poses a serious risk to North Carolina's seafood industry.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Strongly agree	283	51.5	56.7	56.7
	2 Somewhat agree	133	24.3	26.7	83.4
	3 Neither agree nor disagree	55	10.1	11.1	94.5
	4 Somewhat disagree	18	3.3	3.6	98.1
	5 Strongly disagree	9	1.7	1.9	100.0
	Total	499	90.8	100.0	
Missing	6 Not sure or don't know	51	9.2		
Total		550	100.0		

Do you ever swim in the ocean or other coastal waters in North Carolina during the summertime?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	258	46.8	46.8	46.8
	2 No	292	53.2	53.2	100.0
Total		550	100.0	100.0	

Do you ever fish in the ocean or other coastal waters in North Carolina?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	212	38.6	38.6	38.6
	2 No	338	61.4	61.4	100.0
	Total	550	100.0	100.0	

Do you ever go boating on the North Carolina waters?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	206	37.5	37.5	37.5
	2 No	344	62.5	62.5	100.0
	Total	550	100.0	100.0	

How knowledgeable would you rate yourself on each of the following issues? - The effects of agricultural runoff from fertilizers, pesticides, or animal waste on water quality.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very knowledgeable	110	20.0	20.0	20.0
	2 Somewhat knowledgeable	277	50.4	50.4	70.4
	3 Not at all knowledgeable	163	29.6	29.6	100.0
	Total	550	100.0	100.0	

How knowledgeable would you rate yourself on each of the following issues? - The effects of stormwater runoff from roads and highways on water quality.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very knowledgeable	101	18.3	18.3	18.3
	2 Somewhat knowledgeable	320	58.2	58.2	76.5
	3 Not at all knowledgeable	129	23.5	23.5	100.0
	Total	550	100.0	100.0	

How knowledgeable would you rate yourself on each of the following issues? - The effects of industrial pollutants on water quality.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very knowledgeable	123	22.4	22.4	22.4
	2 Somewhat knowledgeable	277	50.4	50.5	72.9
	3 Not at all knowledgeable	149	27.0	27.1	100.0
	Total	549	99.8	100.0	
Missing	System	1	.2		
Total		550	100.0		

How knowledgeable would you rate yourself on each of the following issues? - The effects of wastewater treatment on water quality.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very knowledgeable	128	23.3	23.4	23.4
	2 Somewhat knowledgeable	275	49.9	50.0	73.4
	3 Not at all knowledgeable	146	26.5	26.6	100.0
	Total	549	99.8	100.0	
Missing	System	1	.2		
Total		550	100.0		

How knowledgeable would you rate yourself on each of the following issues? - The effects of septic systems on water quality.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very knowledgeable	120	21.7	21.8	21.8
	2 Somewhat knowledgeable	247	44.9	45.0	66.7
	3 Not at all knowledgeable	183	33.2	33.3	100.0
	Total	549	99.8	100.0	
Missing	System	1	.2		
Total		550	100.0		

How knowledgeable would you rate yourself on each of the following issues? - The effects of plastic pollution on the supply of fish and shellfish.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Very knowledgeable	120	21.7	21.9	21.9
	2 Somewhat knowledgeable	291	53.0	53.3	75.2
	3 Not at all knowledgeable	136	24.7	24.8	100.0
	Total	547	99.4	100.0	
Missing	System	3	.6		
Total		550	100.0		

Do you use the local newspaper to keep informed about coastal water quality issues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	170	30.9	30.9	30.9
	2 No	380	69.1	69.1	100.0
	Total	550	100.0	100.0	

Do you use the local television news to keep informed about coastal water quality issues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	329	59.9	59.9	59.9
	2 No	221	40.1	40.1	100.0
	Total	550	100.0	100.0	

Do you use talk radio programs to keep informed about coastal water quality issues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	146	26.6	26.6	26.6
	2 No	404	73.4	73.4	100.0
	Total	550	100.0	100.0	

Do you use social media sources such as Facebook or Twitter to keep informed about coastal water quality issues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	182	33.1	33.1	33.1
	2 No	368	66.9	66.9	100.0
	Total	550	100.0	100.0	

Do you speak with friends or family to keep informed about coastal water quality issues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	255	46.3	46.3	46.3
	2 No	295	53.7	53.7	100.0
	Total	550	100.0	100.0	

Do you use any additional sources not mentioned in the previous questions to keep informed about coastal water quality issues?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	130	23.6	23.6	23.6
	2 No	420	76.4	76.4	100.0
	Total	550	100.0	100.0	

What sources do you use to keep informed about coastal water quality issues? (Please select all boxes that apply.) - Other sources. Please specify: - Text

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		541	98.3	98.3	98.3
	Alliance To End Plastic Waste	1	.1	.1	98.4
	Blogs websites	0	.1	.1	98.5
	emails, local magazines	0	.1	.1	98.6
	Gab, Parler, MeWe,	1	.1	.1	98.7
	Google	0	.1	.1	98.7
	google news	1	.1	.1	98.9

I used to work a one company that handled a lot of chemicals during their manufacturing process, so had to attend yearly safety training & I sat on an advisory panel at a different chemical company th	0	.0	.0	98.9
In depth peer reviewed research journal articles	1	.1	.1	99.0
Industry communication	1	.1	.1	99.1
Internet	2	.3	.3	99.4
National geographic	0	.0	.0	99.5
National news CBS	0	.0	.0	99.5
Online news	1	.2	.2	99.7
Youtube	2	.3	.3	100.0
Total	550	100.0	100.0	

For statistical purposes only, which category best describes you?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Hispanic or Latino of any race	49	8.9	9.7	9.7
	2 White or Caucasian	316	57.4	62.4	72.1
	3 Black or African American	109	19.9	21.6	93.7
	4 Asian or Asian American	15	2.8	3.0	96.7
	5 Some other race or ethnicity, or multiple races	16	3.0	3.3	100.0
	Total	506	92.0	100.0	
Missing	6 Prefer not to answer	44	8.0		
Total		550	100.0		

What is your age range?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 18 to 24 years old	64	11.6	12.1	12.1
	2 25 to 34 years old	91	16.5	17.3	29.4
	3 35 to 44 years old	87	15.8	16.5	45.9
	4 45 to 54 years old	92	16.8	17.6	63.5
	5 55 to 64 years old	87	15.8	16.5	80.0
	6 65 years or older	105	19.1	20.0	100.0

Total		526	95.6	100.0
Missing	7 Prefer not to answer	24	4.4	
Total		550	100.0	

What is the highest level of school you have completed or the highest degree you have received?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 High school graduate, GED certificate, or did not finish high school	201	36.5	38.6	38.6
	2 Some college or a 2-year associate degree	168	30.5	32.3	70.9
	3 4-year college or university degree	99	18.0	19.0	89.9
	4 Postgraduate degree	52	9.5	10.1	100.0
	Total	520	94.5	100.0	
Missing	5 Prefer not to answer	30	5.5		
Total		550	100.0		

Are you male or female, or do you prefer another description?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Male	255	46.4	47.5	47.5
	2 Female	279	50.6	51.9	99.5
	3 Prefer another description	3	.5	.5	100.0
	Total	536	97.5	100.0	
Missing	4 Prefer not to answer	14	2.5		
Total		550	100.0		