

Public Perception Survey of Long Island Sound Watershed Residents

US EPA Region 2

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The Long Island Sound Study was established in 1985 as a collaborative effort to restore and protect the Sound. The partners include federal, state, interstate, and local government agencies, industries, universities, and non-profit groups. Community residents have always been an important part of this mix. Since the 1980s, for instance, thousands of volunteers have organized in groups to clean up litter from beaches, and to help restore and protect coastal lands. Thousands more have attended coastal events sponsored by government and non-profit groups to learn more about the Sound, and what they can do to protect it.

Dedicated community residents constitute only a fraction of the more than 8 million people who live in Long Island Sound's (LIS) watershed, however. The purpose of this public perception survey—the first undertaken by the Long Island Sound Study—is to learn more about what a broader population of the Sound's watershed residents know about their environment. Ultimately, these findings will be used to shape future public information projects and campaigns on the importance and future protection of the Long Island Sound.

The Long Island Sound watershed includes all geographic areas where water runoff (including potential pollutants) drains directly into the Sound or into lakes, streams, and rivers that feed into the Sound. The Long Island Sound watershed covers a very large geographic area—consisting of New York, five New England states, and even part of Quebec. As a consequence, we decided to confine this first public perception survey of Sound watershed residents to those who likely have the greatest impact on water quality. Specifically, we surveyed residents who live in the coastal watershed area. Residents were chosen in four key areas: (1) the Bronx and Queens (NY), (2) Long Island (Nassau and Suffolk counties; NY), (3) Westchester county (NY), and (4) four coastal communities in Connecticut--Fairfield, New Haven, Middlesex, and New London counties. *(See area description in original RFP attached as Appendix 2).* In areas such as Connecticut where the watershed extends well beyond the coastline, survey respondents were confined to those who lived in communities within 15 miles of the coast. The coastal communities included in this survey reflect a mix of urban and suburban communities and comprise roughly half of the entire watershed population. ***We refer to survey respondents as “residents” throughout this report, as a shorthand for coastal residents of the Long Island Sound watershed.***

The Survey Questionnaire was developed to shed light on residents' knowledge, attitudes and impact on water quality in the Long Island Sound to evaluate local residents' current practices and gain information that could help in the development of a future information campaign. Questions were developed through a collaborative process between the Center for Survey Research staff and the Long Island Sound Study staff, with assistance from the Advisory Board whose members included:

Chester Arnold , Connecticut Nonpoint Source Education for Municipal Officials,
Karen Chytalo, NYS Department of Environmental Conservation
Mark Parker, CT DEP
Dianne Selditch , SoundWaters, Inc.
Maureen Dolan - Citizens Campaign for the Environment
Mark Laska , Great Eastern Ecology
Chris Conner, Alliance for Chesapeake Bay,
Anne McElroy, Stony Brook University

Peg VanPatten, CT Sea Grant
Mark Lubell , UC Davis

Organization of the Report

The report is divided into several key sections. It begins with an executive summary of the study's major findings. This is followed by the body of the report, which includes a more extensive discussion of the survey including key graphics and is divided into the following topics: (1) Recreational use of the Long Island Sound, (2) perceived water quality, (3) the enactment of behaviors that have some impact on water quality, (4) knowledge about the environment in general and the Long Island Sound specifically, (5) attitudes towards environment in general and willingness to change behaviors that affect the Long Island Sound, and (6) residents' exposure to different local media sources. This is followed by a methodology report. The questionnaire and regional results are located in the Appendix 1 of the report. Appendix 2 contains the original RFP area description. Appendix 3 contains a map of the Long Island Sound watershed and a table of the zip codes included in the study sample.

Executive Summary

Key findings of the survey include the following:

REGIONAL DIFFERENCES IN USE OF AND LINKS TO THE LONG ISLAND SOUND (LIS)

- **Long Island and Connecticut Residents Rate Living Near the Sound as More Important:** Long Island residents live closer to the Sound and rate living near it as more important than residents of other areas. Residents of Connecticut report, in turn, that it is more important to them than to Westchester or Bronx and Queens residents.
- **Heavier Use of the Sound on Long Island and Connecticut:** Regional differences affect use of the Sound with the heaviest use reported among residents living on Long Island and Connecticut.
- **Non-water Activities Most Common:** Residents more commonly participate in non-water activities at the Sound such as sitting at the beach, having a picnic, enjoying the view, and hiking or walking than water activities such as swimming, boating or fishing.

PERCEIVED WATER QUALITY IN THE SOUND

- **Better Perceived Water Quality on Long Island and Connecticut:** Long Island residents, who use the Sound most heavily, rate water quality as highest whereas Westchester and Bronx/Queens residents, who visit the Sound less often, perceive it to be more polluted and less safe for swimming and fishing.
- **More Frequent Use of the Sound Improves Water Ratings:** Those who engage in a greater number of activities at the Sound rate the water quality more positively.
- **Sizeable Minority View the Sound as Unsafe:** Over a third of residents view the seafood in the Sound as unsafe, and see the Sound as unsafe for swimming.
- **Overall Water Quality Rated as Fair or Poor:** A majority of watershed residents in all four regions rate water quality as fair or poor.

WATERSHED RELATED BEHAVIORS

- **More Potential to Engage in Harmful Behaviors in Suburban Areas:** A greater percentage of Long Island and Connecticut residents own cars, have gardens, dogs and septic systems than watershed residents of Westchester, the Bronx or Queens.
- **A Sizeable Minority Wash Cars at Home:** Just under 40 % of residents on Long Island and Connecticut wash their cars at home.
- **Frequent Lawn Fertilization:** Just under a half of garden owners fertilized their lawns more than once a year; this rate was somewhat lower in Connecticut.
- **A Minority Fail to Inspect Septic Systems:** More than a third of Long Island and under a quarter of Connecticut residents have not inspected their septic system in the last 5 years.

ENVIRONMENTAL KNOWLEDGE

- **Low Environmental Knowledge:** Residents did not perform well on a six-item general environmental knowledge quiz.
- **Best Known Facts:** The most widely known environmental facts concern the source of carbon monoxide, electricity generation, and the major benefit of wetlands.
- **Watershed-Related Facts Least Well Known:** Roughly a quarter of all residents knew the meaning of the term watershed, a quarter knew that phosphorous and nitrogen promoted excess plant and algae growth, and somewhat fewer residents knew that the major source of water pollution in the United States is surface water runoff.
- **Poor Local Knowledge:** Residents were poorly informed about the destination of water in storm drains, and were unaware that sewage and water runoff comprise the leading sources of pollution in the Long Island Sound.
- **General and Local Knowledge Linked:** General environmental knowledge was linked to both knowledge of the destination of water in storm drains and the major source of water pollution in Long Island Sound.
- **General Knowledge Linked to Improved Lawn Care Practices:** The most knowledgeable LIS watershed residents fertilized their lawns less frequently, were less likely to use a fast-release fertilizer, and left grass clippings on their lawn.
- **No Impact of Knowledge on Septic System Maintenance:** Environmental knowledge had no impact on the frequency of septic system inspections or cleaning.

ENVIRONMENTAL ATTITUDES

- **High Levels of Environmental Concern:** Although residents were not well informed about environmental matters they expressed high levels of concern about the health of the environment.
- **Attitudes Not Linked to Behavior:** Concern about the environment modestly promotes pro-environment behavior among residents, although this is largely because those who are concerned about the environment also know more about it.
- **Lack of Awareness about Behavior:** Most residents believe they do not do anything to worsen water quality in the Long Island Sound. But even those who believe they do damage water quality in the LIS engage in the same potentially harmful watershed-related behaviors as others .
- **Sizeable Minority Believe They can Change:** A sizeable minority of residents in all four regions believed they could change something about their everyday behavior to improve the quality of water in the Sound.
- **Ability to Change Linked to Age, Knowledge and Attitudes.** Younger residents (aged between 18 and 44), those who knew the most about the environment, and those who were most concerned about the environment were most likely to believe they could change their behavior to improve water quality in Long Island Sound.

MEDIA USE

- **Relatively High Exposure to Local Media:** Weekly local newspapers reach a near majority of Connecticut and Long Island residents; a sizeable minority also regularly watch local TV news and read a daily newspaper.
- **Most Knowledgeable Exposed to Local Media:** Almost half of the most environmentally knowledgeable residents read a weekly newspaper each week, and a

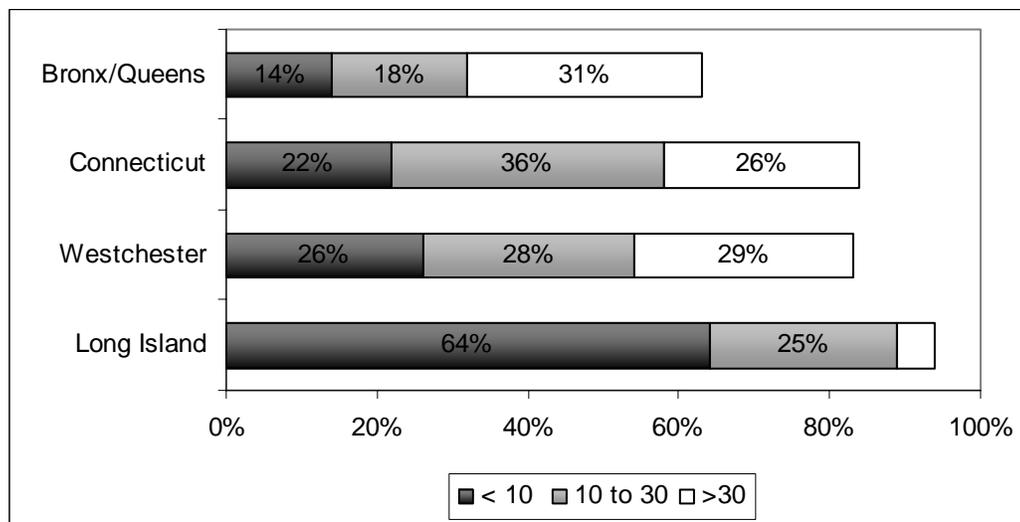
third consistently watch daily local TV news, listen to local news radio, or read a daily newspaper, identifying several effective media outlets for any future education campaign.

Use of the Long Island Sound

Residents of the Long Island Sound watershed vary in their attachment, use, and knowledge of the Sound, with much lower levels of use and awareness in New York City and Westchester counties than on Long Island and Connecticut. This difference colors almost all of the attitudes and behavior documented in this report. Differences arise, in part, because of the geographic boundaries of the watershed, resulting in closer proximity to the Sound among LIS watershed residents on Long Island than in Connecticut (see *Figure A1* in the Methodology section). The Connecticut LIS watershed was restricted to coastal communities within 15 miles of the Sound, but 15 miles is considerably farther than the width of the same watershed on Long Island.

This geographic reality is reflected in how far survey participants report living from the Sound. Almost two-thirds (64%) of Long Island LIS watershed residents say they live within a ten minute drive of the Sound compared to fewer than a quarter of Westchester (26%), Bronx-Queens (14%), or Connecticut (24%) residents (*Figure 1*). It is difficult to tell exactly how far residents of the Bronx and Queens live from the Sound, however, because over a third (36%) had no idea how far they lived from the water. This further highlights the physical and subjective remoteness of the Sound from the everyday lives of New York City residents.

Figure 1: Number of Minutes it Takes to Drive to the Long Island Sound (Q01)



Almost two-thirds of Long Island watershed residents (65%) and a near majority (49%) in Connecticut report that it is somewhat or very important to them to live close to the Sound. Moreover, Long Island residents feel this way most intensely with 3 in 10 reporting that it is very important to them. In contrast, living close to the Sound is only important to 39% of Westchester and 31% of Bronx/Queens residents. Not surprisingly, those who live closest to the Sound rate it as most important. Three in four of those who live within a 10 minute drive rate it as important,

compared to 50% of those who live 10 to 30 minutes from the Sound, and only 33% of those who live more than 30 minutes away.

Regional differences also affect use of the Sound with the heaviest use reported among residents living on Long Island and Connecticut. When asked about different activities undertaken at or on the Sound last summer, over three quarters (79%) of Long Island and 72% of Connecticut residents had taken part in at least one activity in the past year compared to under a half of Westchester (49%) and Bronx/Queens (44%) residents (*Table 1*). On average, Long Island and Connecticut residents took part in two of the five activities listed in Table 1, compared to an average of only one behavior for the other two regions.

Table 1: Percentage of LIS Watershed Residents Participating in Sound Activities Last Summer (Q11-Q15)

	<i>Long Island</i>	<i>Connecticut</i>	<i>Westchester</i>	<i>Bronx/Queens</i>
<i>Go to Long Island Sound to sit at the beach, have a picnic, or just enjoy the view.</i>	72	67	45	37
<i>Hiked or walked along the shores or in a natural area on Long Island Sound</i>	60	53	34	31
<i>Swim in Long Island Sound</i>	41	31	14	19
<i>Motor boating, sailing, kayaking or canoeing on Long Island Sound</i>	38	29	15	7
<i>Fished, gone clamming, or collected other shellfish in Long Island Sound.</i>	26	19	6	9
<i>At least one activity</i>	79	72	49	44

Residents most frequently participate in non-water related activities at the Sound. Sitting at the beach, having a picnic, or enjoying the view was the most commonly reported activity across the coastal watershed area, with more than 70% of Connecticut residents and Long Islanders and close to half of residents of Bronx/Queens and Westchester using the beach in this way last summer. The other common use of the Sound involved hiking or walking, with more than half of Long Island (60%) and Connecticut residents (56%) having done so in the last year. Walking and hiking were also the second-most popular use of the Sound among Bronx/Queens and Westchester residents, although many fewer residents had participated in this activity (roughly a third). Moreover, in addition to a higher percentage of Long Island and Connecticut residents using the Sound for non-water activities, they also participate in these activities more often. Of those who went to the beach last summer to sit, have a picnic, or enjoy the view, 62% of Long Island residents did so more often than once a month compared to only 36% of Bronx and Queens LIS watershed residents.

Residents are less likely to participate in water-based than non-water-based activities at the Sound. Long Island residents were most likely to have gone swimming in the Sound last summer, although only 4 in 10 (41%) had done so. Swimming in the Sound was even less common in Connecticut (31%), and was relatively uncommon in the Bronx and Queens (19%), or Westchester (14%). Long Island and Connecticut residents were not only more likely to swim at the beach than other LIS watershed residents, they did so more often. For example, of those who swam in the Sound last summer, almost half of those on Long Island swam more often than once a month, compared to only 28% of Westchester residents. The percentage of residents who had boated on the Sound was roughly comparable to the number who went swimming in the Sound at least once. About 40% of Long Islanders, 30% of Connecticut residents, 20% of Westchester residents, and only 10% of Bronx/Queens residents had been in a motor boat, sailed, kayaked, or canoed last summer. Fishing was less common again. Over a quarter (26%) of Long Island residents had been fishing in the Sound last summer. But this decreased to 19% for Connecticut residents, down to 6% for Westchester residents.

Not surprisingly, proximity to the Sound as well as its perceived importance is positively related to overall usage of the Sound. Specifically, 87% of those who lived 10 minutes or less from the Sound took part in at least one activity at the Sound last summer. This drops to a bare majority (55%) of those who live 30 minutes or more from the Sound. Similarly, 90% of those who think living close to the Sound is *very* important took part in at least one activity, compared to 40% of those who think living close to the Sound is not at all important.

Perceived Water Quality

Long Island Sound

Residents hold mixed views of the safety and quality of water in the Long Island Sound. Long Island residents, who use the Sound more heavily than residents of other coastal watershed regions, are more likely to believe that water quality is good. In contrast, Westchester and Bronx/Queens residents, who visit the Sound less often, perceived it to be more polluted and less safe for swimming and fishing. These differing perceptions may reflect reality. The western section of Long Island Sound has experienced poorer water quality over time than the eastern section. Moreover, roughly a quarter of residents from Westchester, Bronx, and Queens do not know enough to comment on the water quality of the Sound.

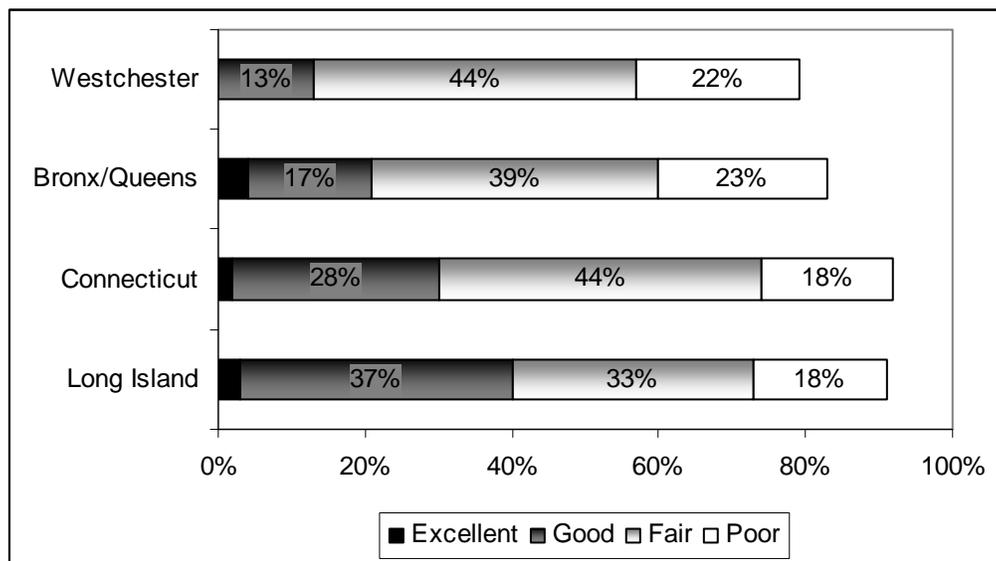
A majority of Long Island (59%) and Connecticut (57%) residents feel it is safe to swim in the Sound, compared to a little over a third of people from Westchester (37%) and the Bronx/Queens (36%). Of course, that still leaves roughly a third of Long Island and Connecticut residents who view the Sound as unsafe for swimming. There are similar regional differences in the perceived safety of local fish and shellfish for human consumption. Over half of Long Islanders (54%), and just under a half of Connecticut (48%) residents feel it is safe to eat fish and shellfish from the Sound, compared to 36% of people from Bronx and Queens, and 28% from Westchester (*Table 2*).

**Table 2: Perceived Safety of Swimming and Eating Seafood
from the Long Island Sound (Q03, Q04)**

	<i>Long Island</i>	<i>Connecticut</i>	<i>Westchester</i>	<i>Bronx/Queens</i>
<i>Swimming in the Sound</i>				
Very Safe	22	11	2	7
Somewhat safe	37	46	35	29
Unsafe	32	34	41	39
Don't know	9	9	23	25
<i>Eating Fish and Shellfish</i>				
Very Safe	20	7	2	12
Somewhat safe	34	41	25	24
Unsafe	36	39	45	41
Don't know	11	13	27	23

Long Island Sound also gets mixed reviews from residents when they were asked outright to rate water quality. A majority of LIS watershed residents in all four regions rate water quality as fair or poor. Once again, Long Island residents hold the most positive views of the Sound but even a majority of Long Island residents rate the water quality as fair or poor. Only 40% of Long Islanders felt the water quality was excellent or good. There was no difference between eastern (Suffolk) and western (Nassau) residents in their rating of water quality. Perceptions of water quality are worse in other regions of the LIS watershed with only 30% of Connecticut residents, 21% of Bronx and Queens residents, and 13% of Westchester residents rating it as excellent or good. We should also note that almost 2 out of every 10 watershed residents in the Bronx /Queens and Westchester could not rate water quality (*Figure 2*). Western residents of Connecticut rated water quality as somewhat worse (64% rated it as fair or poor) than those living in the east (51%), perhaps reflecting actual differences in water quality.

Figure 2: Perception of Water Quality by Region (Q05)



Opinion is very mixed on whether or not the quality of water in the Sound has improved over the last five years, with a majority of residents in all areas rating the water quality as better or the same. On Long Island, over a third view the water quality as the same, roughly a quarter (27%) rate it as better, and under a quarter (21%) rate it as worse, reflecting a thoroughly mixed assessment. Comparable trends are found in the other three regions, although once again a greater percentage of Bronx, Queens and Westchester residents are unable to rate changes in water quality (*Table 4*).

Table 3: Perception of Quality of Water Compared to Five Years Ago (Q06)

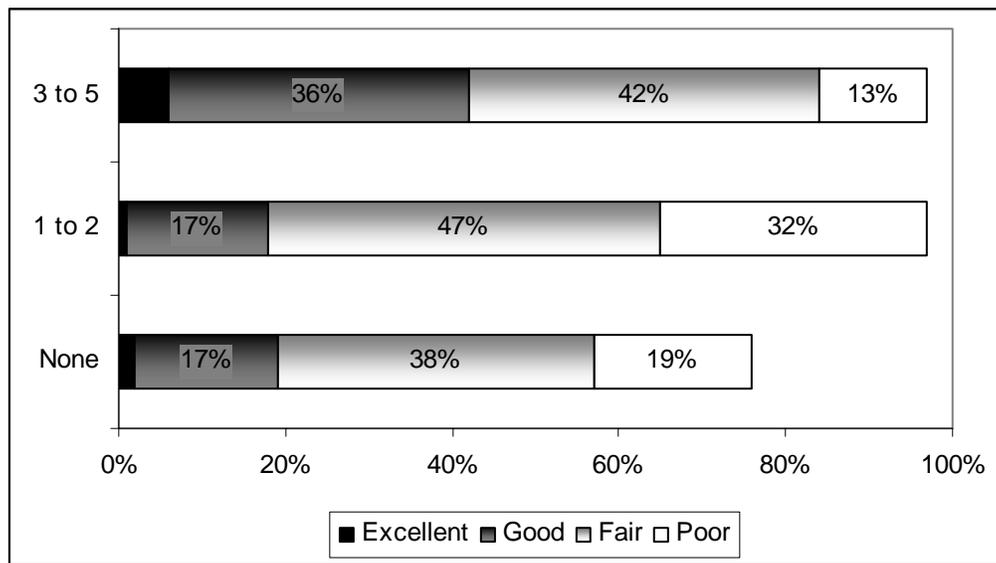
	<i>Long Island</i>	<i>Connecticut</i>	<i>Westchester</i>	<i>Bronx/Queens</i>
<i>Better</i>	27	29	26	28
<i>Same</i>	37	40	30	32
<i>Worse</i>	21	14	10	13
<i>Don't Know</i>	15	17	35	28

There was no clear consensus among those who said the water quality has gotten better as to why it has improved. Across the region, LIS watershed residents referred to a mix of additional legislation, increased clean-up efforts, greater public awareness, and improved sewage and industrial waste disposal to explain why they thought water quality had increased. Of those who said the water quality has gotten worse, the most common reason offered was an increase in pollution very generally, followed by garbage dumping and land runoff, boating and overuse of the Sound, with population increase and industrialization mentioned least often.

It is important to underscore that more frequent use of the Sound is related to a positive rating of water quality. In general, residents who recently participated in a greater variety of activities at the Sound were more likely than others to rate the water quality positively and view it as having

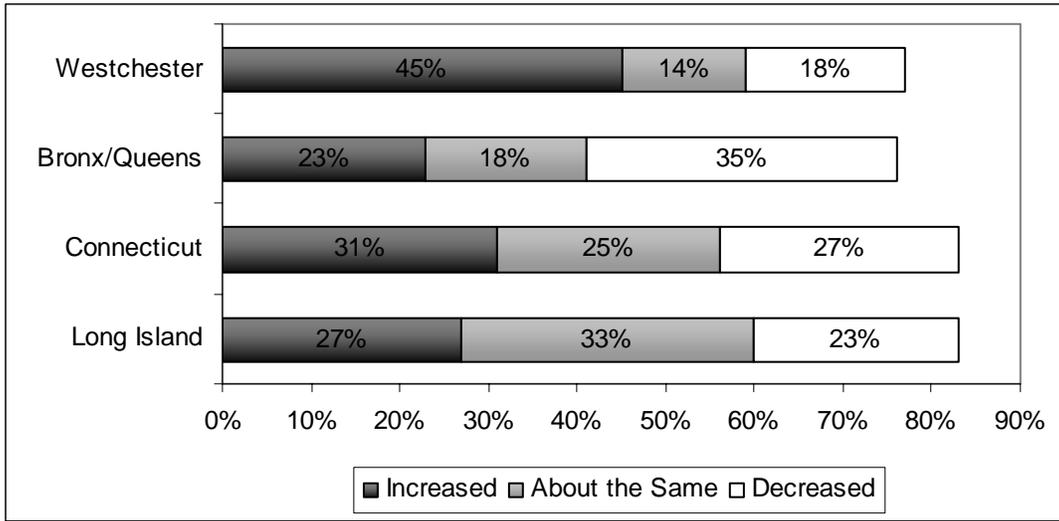
improved over the last five years. For example, of those who had undertaken at least three different activities at the Sound last summer (either going to the beach, hiking, swimming, boating, or fishing), 42% rated the water quality as good or excellent, compared to only 19% of those who had not done anything at the Sound (*Figure 3*). Of course, even those who had been relatively active at the Sound and engaged in at least three different activities, still had reservations about water quality.

**Figure 3: Perceived Water Quality (Q05)
by Use of Sound (Number of Activities Undertaken Last Summer)**



Residents also held mixed views on the presence of litter along the shores of the Sound. There was no clear consensus on whether or not litter along the shores had increased or decreased compared to ten years ago. Westchester residents were the most negative, with over 4 in 10 (44%) saying that litter had increased, compared to only 18% who said litter had decreased. In contrast, a larger number of Bronx and Queens residents thought that litter had decreased (35%) rather than increased (23%). Long Island and Connecticut residents held fully mixed views with a slightly greater number saying that litter had increased than decreased (*Figure 4*). Western residents of Long Island living in Nassau county did not differ from those living in eastern Suffolk county in estimates of litter. Western Connecticut residents were slightly to think litter had increased in the last ten years when compared to those living in eastern Connecticut (34% compared to 25%).

Figure 4: Perception of Litter along the Shores Compared to 10 Years Ago (Q10)



Local Rivers, Creeks, and Streams

Almost three-quarters (73%) of Connecticut residents said they lived within a mile of a freshwater river, creek, stream or brook; this was the case for many fewer residents of the other three areas (38% of Westchester, 35% of Long Island, and 32% of Bronx/Queens watershed residents). A majority of Long Island and Connecticut LIS watershed residents who lived near a stream or creek, thought that the quality of water was about the same as five years ago. In contrast, residents of Westchester were equally divided as to whether water quality in their local creek, stream or river was better (26%), worse (29%) or the same (33%) as five years ago. Residents of the Bronx and Queens viewed water quality in their local river or stream as having improved (41%) or stayed the same (31%).

Watershed-Related Behaviors

A sizeable minority of residents living in the LIS watershed engage in behaviors that are considered potentially damaging to the quality of the water in Long Island Sound. Harmful behaviors examined in this study include the frequent use of garden fertilizer, washing cars at home in the driveway, failing to collect dog waste, and a failure to follow good septic system maintenance practices. All of these harmful behaviors are more common in suburban areas, especially on Long Island and Connecticut, because suburban residents have greater opportunity to engage in them than do city dwellers. Almost all of the residents of Long Island, Connecticut and Westchester own a car or a motor cycle compared to only two-thirds of residents in the Bronx and Queens. Over three-quarters of Long Island and Connecticut residents have gardens for which they are responsible, but this is true of barely a half of all Westchester residents, and just over a quarter of Bronx/Queens residents. Overall, a minority of residents own dogs, but this too is more common on Long Island and in Connecticut. And finally, septic systems are largely confined to Long Island and Connecticut LIS watershed residents (*Table 4*).

Table 4: Percentage of LIS Watershed Residents who have Cars, Lawns, Dogs, and Septic Tanks¹ (Q17, Q19, Q26, Q34)

	<i>Long Island</i>	<i>Connecticut</i>	<i>Westchester</i>	<i>Bronx/Queens</i>
<i>Have a car or motorcycle</i>	99	94	87	63
<i>Have a lawn or garden</i>	85	77	53	27
<i>Have a dog</i>	39	37	13	10
<i>Have a septic tank or cesspool</i>	66	46	2	2

Car Cleaning and Maintenance

Most car owners have their car washed commercially, but this varies by geographic region. Among car owners, just under 40% of those on Long Island and Connecticut wash their cars at home compared to 19% in the Bronx/Queens and 26% in Westchester. And almost all of those who wash their car at home do so in the driveway (92%) from where water is likely to run into storm drains (*Table 5*). Among car owners, just under a quarter of Connecticut (24%) and Long Island (21%) residents lived in households where someone changed car oil at home. Of those who changed their oil at home, most (roughly 76%) said that they disposed of the excesses oil by taking it to the waste recycling center, followed by putting it into household garbage, or pouring it into a drain outside the house (11%). Residents of Nassau county were somewhat less likely to wash their car at home than residents of Suffolk county (30% vs. 48%), but did not differ in whether someone changed car oil at home. There were no east-west differences in car-related behavior in Connecticut.

Lawn Care

Most residents on Long Island (85%), Connecticut (77%), and to a lesser extent Westchester (53%) have an outdoor garden or lawn for which they are responsible. And a majority of these lawns are cared for by a household member. Use of a gardening service (solely or in combination with care provided by a household resident) is most common on Long Island (46%), followed by Westchester (38%), Bronx/Queens (34%) and was least common in Connecticut (19%). Most garden owners use fertilizers, a major source of nonpoint pollution, on their lawn. With the exception of Connecticut residents, just under a half of garden owners fertilized their lawns more than once a year, a rate that probably exceeds recommended practice. Between a quarter and a third of residents in all regions fertilized their lawns roughly once a year. Lawn fertilization was least common in Connecticut where a greater number of residents never fertilized their lawn (26% compared to about 13% on Long Island). There had been no obvious change in the rate of lawn fertilization with almost three-quarters of lawn owners reporting that they fertilized their lawn at the same rate as five years ago. Garden owners were also asked whether or not they used a slow or fast release fertilizer. Roughly a third used a fast release product and another third did not know, suggesting that up to two-thirds have not adopted slow-release products designed to reduce nonpoint water pollution. There was no east-west difference in the use of slow fertilizer on Long island or Connecticut.

¹ People who said “don’t know” and “refused” were taken out of the calculations.

Table 5: Percent of LIS Watershed Residents who Engage in Behaviors with Potential Negative Impact on Water Quality in the Long Island Sound (Q17, Q18, Q21, Q23, Q29, Q32)

	<i>Long Island</i>	<i>Connecticut</i>	<i>Westchester</i>	<i>Bronx/Queens</i>
<i>Car Owners</i>				
<i>Wash car at home</i>	38	38	25	18
<i>Change oil at home</i>	21	24	8	9
<i>Have Garden/Lawn</i>				
<i>Fertilize > 1 / year</i>	49	30	48	45
<i>Have Garden & Fertilize</i>				
<i>Fast Release Fertilizer or DK</i>	65	64	67	60
<i>Dog Owners</i>				
<i>Does not always collect droppings in neighborhood</i>	22	37	21	10
<i>Septic Sytem Owner</i>				
<i>Inspected > 3 yrs ago or DK</i>	53	31	--	--

Garden owners were also asked about several good practices intended to improve local water quality. Residents were asked whether or not they left grass clippings on their lawns, a required practice in some localities, designed to reduce the release of organic matter into waterways and cut the need for lawn fertilizer. The majority of Long Island residents and Connecticut residents left their grass clippings on their lawn after mowing it, whereas the majority of Bronx/Queens and Westchester residents did not. This practice was most common in eastern areas of Long Island (62% of those in Suffolk compared to 40% in Nassau) and Connecticut (73% compared to 55%). And most garden owners did not add compost to the soil; Westchester residents were somewhat more likely to do so than residents of other areas (*Table 6*). There was no difference between east and western areas of Long Island and Connecticut in the use of compost.

Table 6: Percentage of Residents who Engage in Positive Environmental Behaviors (Q24, Q25)

	<i>Long Island</i>	<i>Connecticut</i>	<i>Westchester</i>	<i>Bronx/Queens</i>
<i>Garden Owners</i>				
<i>Leave grass clippings on lawn</i>	51	60	30	29
<i>Use compost</i>	35	33	43	31

Pet Waste

As noted earlier, dog owners were more common on Long Island and Connecticut than in other watershed areas. And over a third (37%) of Long Island and 21% of Connecticut dog owners took their dog to a beach on Long Island Sound. Most dog owners disposed of their dog’s waste responsibly and were somewhat more likely to pick up their dog’s waste at the beach than

elsewhere (85% of Long Island residents always collected their dog's droppings at the beach compared to 69% who did so in the local neighborhood). Connecticut dog owners were the least likely to pick up after their dog with a quarter indicating that they never collected their dog's waste in the local neighborhood. Residents of Nassau county were more likely to than residents of other areas (80% collected waste when walking the dog in their neighborhood). Most Long Island and Connecticut dog owners placed their dog's waste in the trash, although a sizeable minority (26%) in Connecticut composted this waste. The majority of residents had not seen or used a "dogipot" or pet waste station in their neighborhood, although they seemed slightly more common in Westchester where they had been seen or used by 17% of dog owners compared to roughly 10% in the other three regions.

Septic System Maintenance

Most Westchester and Bronx/Queens watershed residents are connected to a public sewer system. In contrast, 63% of Long Island and 45% of Connecticut watershed residents had a septic tank or cesspool. Good practice suggests that septic systems should be inspected every 1 to 3 years, but over a half of Long Island residents and just under a third of Connecticut residents had not done so. Among septic system owners, 47% had their system inspected in the last 3 years on Long Island and 69% in Connecticut. Moreover, almost a fifth of Long Island and 15% of Connecticut septic system owners did not know when their tank was last inspected. This means that 53% of septic system owners on Long Island and 31% in Connecticut had not had their system inspected in the last 12 months or did not know when it had last been inspected. Good practice suggests that septic tanks and cesspools should be pumped or emptied out every four to five years. Connecticut septic system owners were largely in compliance with these recommendations; almost three in four had had their tank pumped or emptied in the last five years. In contrast, only 47% of Long Island septic system owners had done so. This geographic difference magnifies potential water pollution problems because Long Islanders make up the majority of septic system owners in the coastal watershed region.

Environmental Knowledge

General Environmental Knowledge

Coastal LIS watershed residents were asked six multiple choice general environmental questions, modeled on questions developed by the National Environmental Education and Training Foundation (NEETF) (<http://www.neetf.org/pubs/ELR2005.pdf>), which were combined into an overall knowledge scale. Residents were asked a series of questions (*Table 7*) that touched on both water-related and air-linked pollution. Overall, residents did not perform well on this quiz. The average resident was correct on two of these six general knowledge questions. The most widely known facts included: (1) Motor vehicles are the biggest source of carbon monoxide (roughly 70% answered correctly in all regions compared to 65% nationally). (2) Burning fossil fuels generates most of the electricity in the U.S. (69% answered correctly on Long Island, 51% in CT, but most got it wrong in the other two areas. This compares to 33% of a national sample of Americans who answered it correctly). (3) Wetlands help to clean water before it enters lakes, streams, and rivers (a majority answered correctly except in the Bronx/Queens, compared to 53% nationally). As noted, knowledge levels are not very different in the coastal Long Island Sound watershed region than in the nation as a whole, when compared to findings reported by NEETF.

On the remaining knowledge questions (several of which were directly linked to watershed issues), the majority answered incorrectly. Strikingly, very few coastal watershed residents knew the meaning of the term. A majority had heard of the term “watershed,”² although most who had heard of it did not know what it meant. This left a quarter of all residents, at best, who had heard of the term and knew what it meant (dropping to as low as 10% in the Bronx/Queens). Among those who had heard the term watershed, there was considerable confusion between a watershed and wetlands. Other facts concerning water pollution were equally poorly known. At most, a quarter of all residents on Long Island and in Connecticut knew that phosphorous and nitrogen promoted excess plant and algae growth. Residents were confused about this with roughly equal numbers believing that nitrogen and phosphorous “pollute drinking water” or “are poisonous to fish”. Finally of considerable relevance to the current study, very few residents knew that the major source of water pollution in the United States is surface water runoff (<http://www.neetf.org/pubs/ELR2005.pdf>). A near majority of residents in all regions believed water pollution was due to waste dumped by factories (*Table 7*).

Table 7: Percentage of LIS Watershed Residents Answering Environmental Questions Correctly (Q43, Q57-Q61)

	<i>Long Island</i>	<i>Connecticut</i>	<i>Westchester</i>	<i>Bronx/Queens</i>
<i>What is the biggest source of carbon monoxide?</i>	74	69	66	65
<i>What is the primary benefit of wetlands?</i>	59	59	57	35
<i>How is most electricity in U.S. generated?</i>	69	51	40	32
<i>What is a watershed?</i>	22	28	25	10
<i>What is the major impact of phosphorous and nitrogen?</i>	24	22	24	9
<i>What is the main source of water pollution in the U.S.?</i>	17	22	13	9

Overall, the most knowledgeable residents were middle-aged (45-64), white, and well-educated. Roughly 30% of all those aged between 45 and 64 obtained between 3 and 5 answers correct on the knowledge quiz, compared to only 14% of those aged between 18 and 34, 19% of those aged 35-44, and 18% of those 65 or older. More than a third (37%) of residents with a college education obtained a score of between 3 and 5 on the knowledge quiz, compared to 4 % of those with less than a high school education, and 19% of those with a high school education or some college. Finally, 31% of whites obtained 3 or more questions correct on the quiz compared to 13% of Asians and only 3% of blacks and Hispanics. All three factors (age, education, and race/ethnicity) were significant predictors of knowledge in multivariate regression analyses (not shown here).

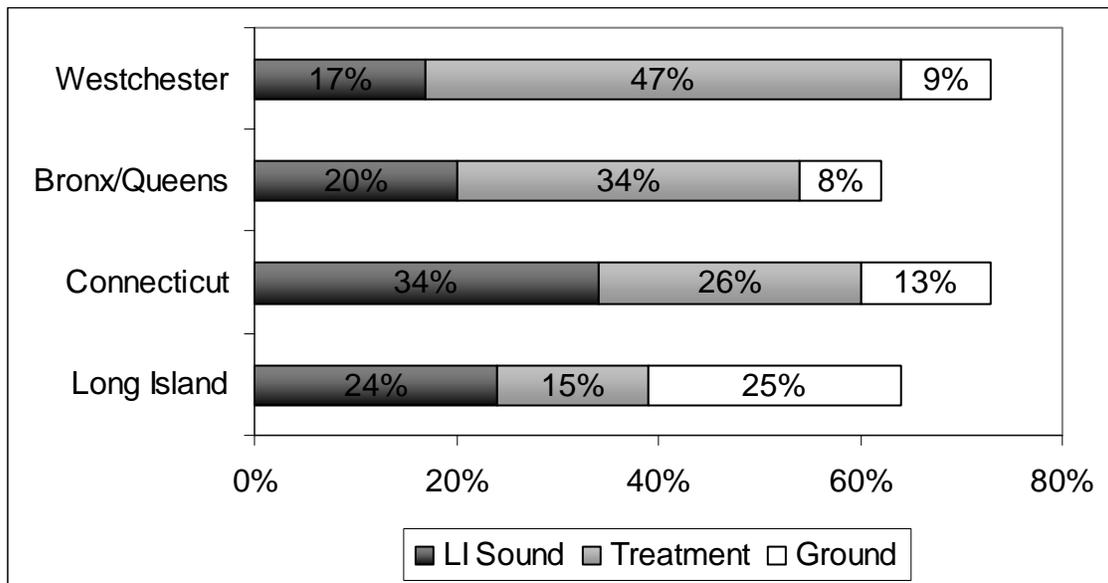
² Familiarity with the term watershed was greatest in Connecticut at 70%, and lowest in the Bronx/Queens at 39%.

Knowledge of the Long Island Sound

Residents were asked two questions concerning their knowledge of Long Island Sound. They were asked the single most important source of pollution, and whether or not water in storm drains goes into the Sound. Residents of Long Island and Connecticut were somewhat more likely to know that storm drains empty straight into Long Island Sound or its tributaries than residents of other areas. But even in Long Island and Connecticut, no more than a third of residents knew this fact. There was slightly greater awareness of this in eastern (41%) than western Connecticut (30%), but no east-west differences in knowledge were observed on Long Island.

Awareness was much lower in the other two regions (*Figure 5*). It should be noted that some storm sewer systems on Long Island drain into sumps to recharge groundwater. Therefore, it may be fair to conclude that some of the Long Island residents who chose “ground” may in fact be correct. It might also be argued that respondents were confused by the options which asked about water running directly into the Long Island Sound instead of emptying into a local river or stream, as many do. As seen in Appendix 1, however, most residents who did not pick one of the three major options chose the “don’t know” response rather than “something else” which was offered to them as a possible response. This suggests that most residents remain uninformed about the ultimate destination of storm water runoff.

Figure 5: Where Does Most of the Water in Storm Drains Go? (Q39)



On the question concerning the single most important source of water pollution in the Sound, we included both sewage treatment facilities and water runoff as correct answers. No more than 40% of residents in any area got this right, with the highest percentage of correct answers in Connecticut (38%), followed by Westchester (33%), Long Island (29%), and the Bronx/Queens (21%) (*Table 8*).

Table 8: Major Source of Water Pollution in Long Island Sound (Q38)

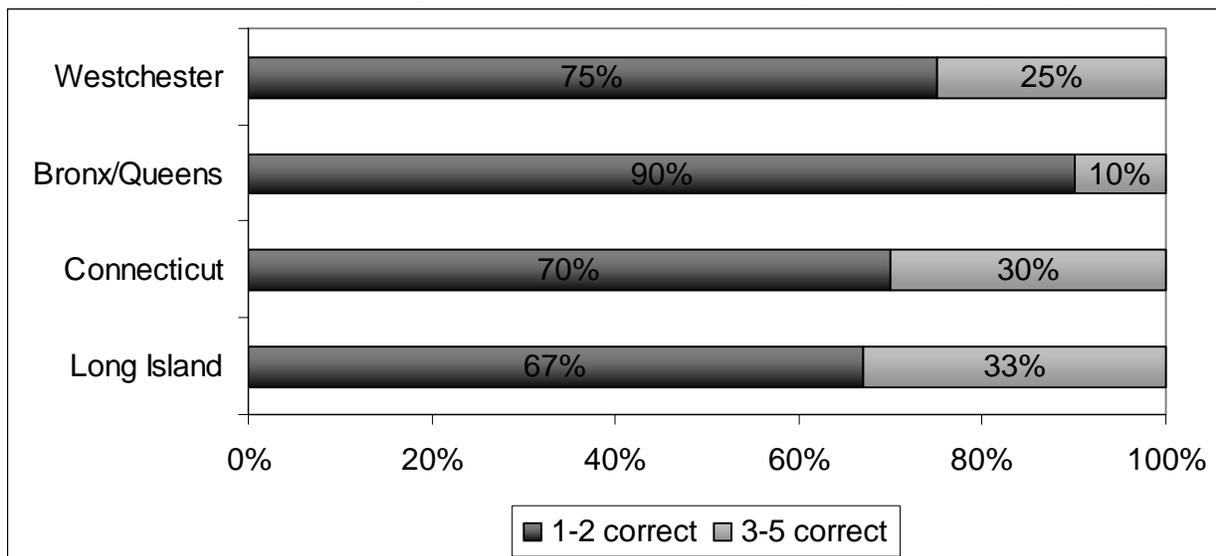
	Long Island	Connecticut	Westchester	Bronx/Queens
Sewage treatment	12	20	21	13
Water runoff	17	18	12	8
Lawn fertilizer	6	3	10	2
Industrial plants	19	20	18	18
Development	14	12	16	15
Boats	13	11	9	6
Automobiles	5	4	2	16
Pet & animal waste	1	2		8
DK	14	9	12	15

There was an association between general environmental knowledge and knowledge of the Long Island Sound. To examine this link, we created a scale which included responses to the general environment quiz, excluding the “carbon monoxide” question.³ For analytic purposes, we designate as “high knowledge” those who answered three or more of the five questions correctly, while “low knowledge” residents answered zero to two correctly. Roughly 20% of all residents scored in the “high knowledge” category, although this number rises to 33% on Long Island and 30% in Connecticut (*Figure 6*).

Not surprisingly, residents who correctly answered general environmental questions were more likely to correctly answer questions about the Sound. Just under a half (49%) of those who answered three or more questions on the quiz correctly also knew that storm drains lead directly to the Long Island Sound, compared to only 19% of those who scored two or less correct. General knowledge also increased knowledge of the major sources of water pollution in the Sound; 45% of the “high knowledge” and 27% of the “low knowledge” group mentioned either sewage plants or water runoff, two of the major sources of water pollution in Long Island Sound. Nonetheless, there is considerable room for improvement in knowledge about the Sound, including room for improvement among the most environmentally knowledgeable.

³ This question did not scale with other quiz items in a factor analysis (not shown here) and was excluded from the scale.

Figure 6: Number of Correct Items on the 5 Question High and Low Knowledge on the Environment Quiz (Q43, Q57, Q59-Q61)



General Knowledge and Behavior

There is an obvious connection between general environmental knowledge and self-reported environmental behaviors. Those who know the most about the environment are more inclined to act in ways that are environmentally beneficial, although there are still substantial numbers of the well-informed who do not enact pro-environment behaviors. In addition to watershed-related behaviors, we analyze the impact of knowledge on various pro-environment behaviors including recycling.

The most knowledgeable residents (scoring three or more on the five- question quiz) were more likely to practice positive lawn care behaviors and less likely to undertake negative practices than those with lower levels of environmental knowledge. Nonetheless, there is room for improvement among the most knowledgeable since 53% use a fast-release fertilizer or are unsure of what they use, just under 30% fertilize their lawn more than once a year, and just under 40% do not leave grass clippings on their lawns or apply compost to their gardens.

There is also visible room for improvement in the maintenance of septic systems. A minority of residents do not have their systems inspected at least once every three years as recommended, and those high in environmental knowledge are actually somewhat less likely to do this (39%) than those with lower knowledge levels (36%) (*Table 9*). Moreover, environmental knowledge does not dramatically increase the tendency to regularly pump out one’s septic systems. Among the least knowledgeable, 35% had not emptied their septic system in the last five years compared to 28% of the most knowledgeable. The potential impact of a poorly functioning septic system on water quality in the Long Island Sound suggests the need for far greater information on septic system management on both Long Island and Connecticut.

Table 9: Pro-Environment Behavior by Level of Environmental Knowledge (Q57, Q59-61, 49-Q52, Q17, Q21, Q22, Q23, Q24, Q25, Q35, Q62, Q63)⁴

	<i>Low Knowledge (0-2 correct)</i>	<i>High Knowledge (3+ correct)</i>
<i>Lawn Care—lawn owners</i>		
Fertilize more than once a year	45	29
Of those who fertilize, use fast product or DK	68	53
Fertilize less often than 5 years ago	8	22
Of those who have a lawn, leave grass clippings	44	63
Of those who have a lawn, use compost	33	37
<i>Automobile Care – car owners</i>		
Wash car at home	29	33
<i>Septic Tank/Cesspool Care-septic system owners</i>		
Have not had it inspected in last three years or DK	36	39
<i>Recycling</i>		
Recycle paper products, all of the time	63	71
Recycle plastic products, all of the time	57	66

General environmental knowledge had a modest impact on recycling behavior. Between 60% and 75% percent of residents said they recycle glass and plastic products all of the time, roughly 60% said they recycle paper products all of the time, and roughly a third bought paper products made out of recycled paper all or most of the time. The most knowledgeable were more inclined than others to recycle paper and plastic products (*Table 9*).

Environmental Attitudes

Although environmental knowledge is low, concern is high, a finding that emerges within the nation as a whole (<http://www.neetf.org/pubs/ELR2005.pdf>). Roughly 90% of residents in all regions agree that humans are severely abusing the environment. Between 60 and 70% disagree that the balance of nature is strong enough to cope with the impacts of modern industrial nations. Somewhere between 45% and 65% of residents across the different regions of the LIS watershed feel the “ecological crisis” has not been greatly exaggerated. Between 70% and 80% agree that if things continue on their present course, we will soon experience a major ecological catastrophe. And roughly 70% said protecting the environment was more important to them than encouraging economic growth.

Overall, pro-environment attitudes among residents produce a modest increase in pro-environment practices, a point that has been well documented for attitudes and behavior generally. Those most concerned about the environment (and scoring in the top half of the

⁴ Data in this table are re-weighted to accurately represent the entire population of the coastal LIS watershed. This weight includes post-stratification weights for non-response and a population weight to re-weight all four regions according to their true presence in the LIS watershed population. See the Methodology section for greater detail.

“environmental concern” scale created by combining all attitude items) fertilize their lawns less often, leave lawn grass clippings, inspect their septic system more frequently, and recycle paper products more often. But these differences are small and are not observed for all behaviors (Table 10). Moreover, environmental knowledge and pro-environment attitudes are related and when their impact is examined in multivariate statistical analyses (not shown here—see the Methodology section), the impact of knowledge has consistently stronger impact on behavior than attitudes. This indicates that the effect of pro-environment attitudes on pro-environment behavior is largely mediated by environmental knowledge.

Table 10: Pro-Environment Behavior by Level of Environmental Concern (Q49-Q52, Q17, Q21, Q22, Q23, Q24, Q25, Q35, Q62, Q63)

	<i>Low Concern</i>	<i>High Concern</i>
<i>Lawn Care—lawn owners</i>		
Fertilize more than once a year	49%	32%
Of those who fertilize, use fast product or DK	63%	64%
Fertilize less frequently than 5 years ago	9%	15%
Of those who have a lawn, leave grass clippings	45%	55%
Of those who have a lawn, use compost	40%	35%
<i>Automobile Care – car owners</i>		
Wash car at home	32%	29%
<i>Septic Tank/Cesspool Care-septic system owners</i>		
Have not had it inspected in last three years or DK	41%	32%
<i>Recycling</i>		
Recycle paper products, all of the time	62%	69%
Recycle plastic products, all of the time	56%	63%

Personal Impact on the Sound

Despite evidence to the contrary, roughly 70% of residents do not believe they do anything that worsens the quality of water in the Long Island Sound. A closer look revealed that those who thought they did not affect water quality negatively were just as likely to partake in harmful activities (e.g. washing car in driveway, using the quick release fertilizer), as those who thought they may affect it negatively. Moreover, a majority of residents did not think there was anything they could do to improve the quality of water in Long Island Sound, although they believed that if other residents changed their everyday behavior water quality in the Sound would improve (Figures 7 & 8). This suggests a deep-seated failure to understand (or care about) how one’s personal behavior impacts local water quality.

Figure 7: Any Change in Your Everyday Behavior that Would Improve Water Quality? (Q55)

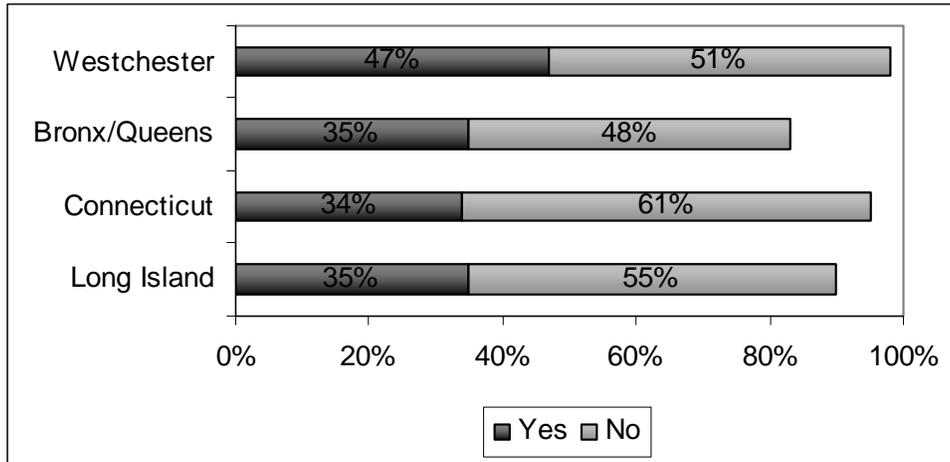
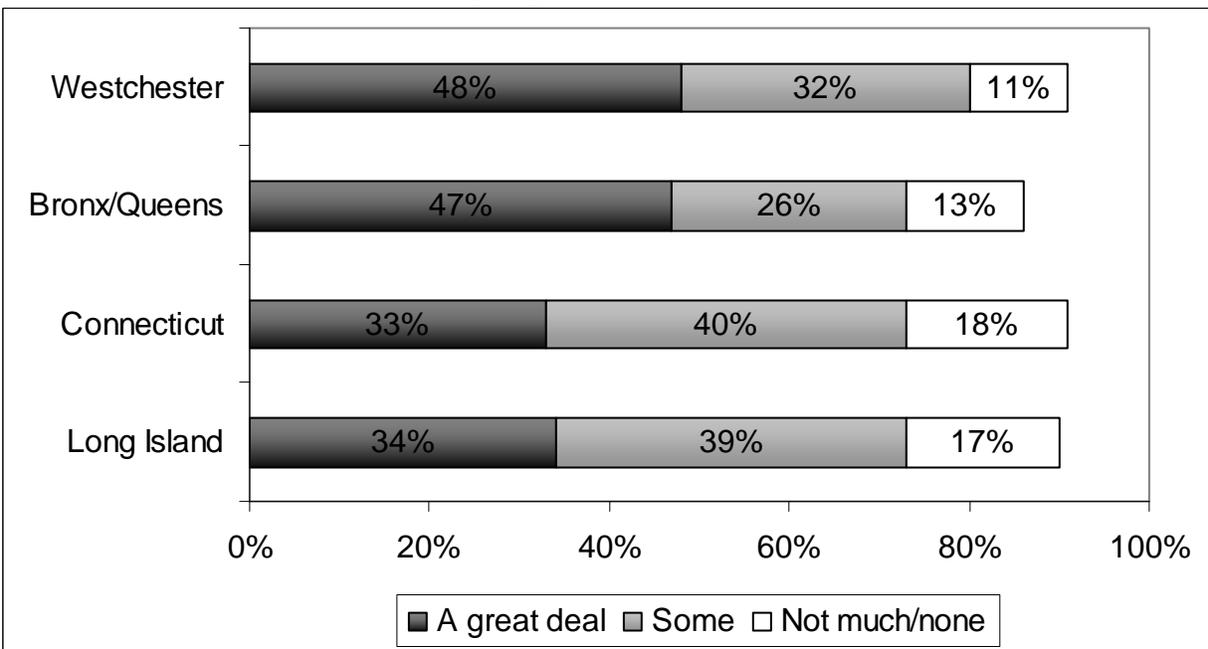


Figure 8: Improvement in Water Quality if Most Residents Changed Their Everyday Behavior? (Q56)



A majority of residents did not think they could do anything to improve water quality in Long Island Sound, but that left roughly a third who believed they could change something about their everyday behavior to improve water quality. A belief in change was highest in Westchester, where 47% believed they could do something positive to impact water quality compared to roughly a third of residents in the other three regions. These views did not differ in eastern and western areas of Long Island and Connecticut. A belief in change was also greatest among the youngest respondents, aged between 18 and 44, those with the most pro-environment attitudes,

and the most environmental knowledge. All three factors (age, attitudes, and knowledge) significantly predicted this sense of confidence (in multivariate analyses not shown here—see the Methodology section), although the impact of each factor is modest.

Table 11: Environment Confidence by Age, Environmental Concern, and Environmental Knowledge

	<i>Believe a Change in Own Everyday Behavior Can Improve Water Quality</i>
<i>Age</i>	
18-34	46%
35-44	47%
45-54	35%
55-64	34%
65+	30%
<i>Knowledge Quiz</i>	
1-2 correct	39%
3-5 correct	44%
<i>Pro-Environment Attitude</i>	
Low Concern	36%
High Concern	44%

Media Use, Knowledge, Attitudes, and Behavior

In order to influence the behavior of LIS coastal watershed residents it is important to understand their current media consumption habits and information environment. It is also important to understand how residents in different regions obtain news, given regional differences in the impact residents have on the Sound. Consider Long Island and Connecticut residents. As noted earlier, a suburban lifestyle is associated with a higher incidence of behaviors linked to potentially harmful lawn care, car maintenance, and septic tank management practices. And it is important for residents of these suburban areas to receive accurate information about positive watershed-related behaviors. A majority of Connecticut residents and a near majority of Long Island residents report reading a weekly local newspaper on a regular basis (*Table 12*). This may be a very cost-effective and promising way to spread information about water pollution and the watershed. A sizeable minority of residents of both areas regularly watch local TV news and read a daily newspaper. When taken together, any one or all three of these outlets should be considered as a way to transmit information about good watershed behavior to local residents.

Table 12: News Media Consumption in the Long Island Sound Watershed

	<i>Long Island</i>	<i>Connecticut</i>	<i>Westchester</i>	<i>Bronx/Queens</i>
<i>Watch local TV, daily</i>	46	39	43	51
<i>Listen to local news radio, daily</i>	33	28	27	29
<i>Read local newspaper, daily</i>	40	36	24	31
<i>Read weekly newspaper, every week</i>	49	57	40	36

Previous findings also make clear that LIS watershed residents with the highest levels of general environmental knowledge are an obvious target for future information campaigns because they are most likely to translate their knowledge of the environment into behavior. When local residents scoring in the top 20% on the environmental knowledge quiz (obtaining 3 or more correct answers out of a total of 5) are compared to others, local weekly newspapers once again emerge as a widely read source of information. Almost half of the most knowledgeable (and 44% of the least) read a weekly newspaper each week. This is followed by an even mix of daily local TV news, local news radio, and daily newspaper consumption among those with the most environmental knowledge (*Table 13*). Any or all three of these daily news sources provide an additional way in which to get environmental information to those with higher levels of existing environmental knowledge.

Table 13: Media Source by Level of Environmental Knowledge

	<i>Low Knowledge (0-2 correct)</i>	<i>High Knowledge (3+ correct)</i>
<i>Watch local TV, daily</i>	48	37
<i>Read weekly newspaper, every week</i>	44	47
<i>Read local newspaper, daily</i>	32	36
<i>Listen to local news radio, daily</i>	27	35
<i>Received letter from environmental group, last 12 months</i>	14	27
<i>Seen storm drain marker, billboard or flyer</i>	13	23

Having seen a billboard or flyer about the effect of dumping pollutants into storm drains and receiving a letter or e-mail about a local issue from an environmental group were less common than exposure to general sources of news. But having received a letter or having seen a communication about storm drains was more common among those with the most environmental knowledge. Of course, it is impossible to say whether receiving a letter from an environmental group heightens environmental knowledge or whether being well-informed about the environment increases the chances of receiving this type of communication. The same is true of

having seen a billboard or flyer. Those who are more knowledgeable about the environment are likely to better remember having seen this.

Methodology

Sample

The Stony Brook University Center for Survey Research conducted this survey by telephone between March 15 and May 23, 2006. A list-assisted method of random-digit-dialing (RDD) was used to obtain phone numbers in the sample. Within selected households, individuals 18 years and over were selected at random for participation. Up to 7 contact attempts were made at each household phone number. In order to assure a representative sample, all households and individuals who were initially unwilling to participate in the survey were contacted again, and an attempt was made to persuade them to participate. Interviews were conducted in English and Spanish.

The questionnaire was developed in conjunction with Robert Berg and Kimberly Graff representing the Long Island Sound Study group. The advisory board listed in the introduction was consulted on the near-to-final version of the survey and their input was used to modify the final questionnaire. Staff at the Stony Brook University Center for Survey Research developed all questions which were then discussed and modified with representatives of the long Island Sound Study group.

Four regions in the coastal Long Island Sound watershed were selected for inclusion in the survey. Three of these areas were in New York State and the fourth was in Connecticut. Region 1 consisted of coastal zip codes in Nassau and Suffolk Counties in Long Island. The relevant zip codes from coastal areas of Westchester County, NY made up Region 2. For Region 3, the area defined included Bronx and Queens from New York City. Finally, Region 4 contained zip codes from Connecticut for the counties of Fairfield, Middlesex, New Haven and New London. In areas, such as Connecticut, where the LIS watershed extended more than 15 miles inland, respondents were confined to coastal zip codes which were within 15 miles of the Sound. A map of the Long Island Sound can be found in Figure A1 and a complete list of selected zip codes is listed in Table A1 of the Appendix. All telephone numbers were obtained from Genesys Sampling Systems.

A total of 1220 interviews were conducted in the coastal Long Island Sound watershed. In general, a decision was made to undersample the Bronx/Queens and Westchester in comparison to Long Island and Connecticut in order to obtain a larger sample of residents with the greatest potential impact on water quality in the Sound. 406 interviews were completed on Long Island, 503 in Connecticut, 205 in Westchester, and 106 in the Bronx/Queens.

The results for all four regions are presented separately throughout this report because large differences across regions are obscured when results are combined. In instances in which the regions are combined, weights are used to ensure that all combined values represent the true representation of each region in the coastal Long Island Sound watershed. This involves higher weights for the Bronx /Queens and Westchester and lower weights for Long Island and

Connecticut. Specific weights can be obtained from the Stony Brook Center for Survey Research.

The margin of error varies in each region. It is +/- 4.9% on Long Island, +/- 4.4% in Connecticut, +/- 6.8% in Westchester and +/- 9.5% in the Bronx/Queens.

Data was weighed by gender, age and education within each of the four regions based on combined Census data on the characteristics of residents in each zip code. Weights were calculated through use of a raking procedure. Normally, post-stratification weighting would be completed using data from the Current Population Survey. Because of the unique nature of the research design, weights for raking had to be calculated using zip code based data from the 2000 Census. In reality, we used data from the Census' approximation for zip codes, which they deem zip code tabulation areas or ZCTA's, as measures of the geographic information for all possible respondents within the sample.

Finally a combined weight was created after the calculation of post-stratification weights within each of the four regions to ensure that when combined across regions the data accurately represents the true population of the LIS coastal watershed. This final weight corrected for the fact that some regions of the LIS watershed were undersampled and others oversampled. The final weight was based on the number of adults (18 and older) living in all combined LIS watershed regions in 2000. It was created by combining within-region post-stratification weights with a factor of .259 on Long Island, .835 in Connecticut, 1.189 in Westchester, and 2.776 in the Bronx/Queens. This reflects the fact that Long Island and to a lesser extent Connecticut residents were sampled at a higher rate than their presence in the LIS watershed, and Bronx/Queens and Westchester were sampled at a lower rate.

Data Presentation and Multivariate Analyses

On almost all attitudinal questions in the survey, respondents are given multiple options to encourage them to gauge the intensity of their views and measure their beliefs more reliably. In some instances, findings reported in tables and graphs combine several response categories for ease of presentation and interpretation. Please consult Appendix 1 for the exact regional breakdown of responses to each question

Regression analyses were conducted to analyze the determinants of the environmental knowledge and attitudes scales, continuous variables. Logit analysis was used to analyze the determinants of the perceived ability to change one's behavior, a dichotomous variable (Q55). Attitudes and knowledge were regressed onto age, education, race, and gender. Q55 was regressed onto the same set of demographic variables plus environmental knowledge and attitudes. Significant findings ($p < .05$) are reported in the body of this report. In all multivariate analyses, the data was weighted by a combined weight created from the post-stratification weight and a population weight that re-weighted each of the 4 regions to their actual percent of the Long Island Sound coastal watershed population. This ensures that all reported results are representative of the LIS coastal watershed region. Further details about these analyses can be obtained from the Stony Brook Center for Survey Research.

APPENDIX 1

Long Island Sound Study Frequency Questionnaire for Regions

ALL TABLE ENTRIES ARE PERCENTAGES.

Introduction

Hello, my name is _____ and I am calling from the State University of New York at Stony Brook.

We are conducting a study of New York and Connecticut regarding the Long Island Sound and other aspects of your local area.

This survey only takes about 15 - 20 minutes to complete. We will skip over any questions you don't want to answer, and all answers will be kept confidential.

For your information, the study is funded by the Long Island Sound Study. You do not have to participate in this study if you do not want to.

With your permission, let's begin.

Question Q01

How many minutes does it take you to drive to the Long Island Sound?

[IF PERSON IS SO CLOSE THAT THEY CAN WALK IN UNDER 5 MINUTES, CODE IT AS 0-5.
OTHERWISE ASK THEM TO INDICATE HOW LONG IT TAKES THEM TO DRIVE]

	LI	Westchester	Bronx & Queens	Connecticut
0-5 minutes	39%	20%	11%	16%
5-10 minutes	25	6	3	6
10-20 minutes	18	15	6	18
20-30 minutes	7	14	11	18
30-45 minutes	4	10	9	9
45 minutes or more	0	19	23	17
Don't know	7	16	36	16
Refused	0	0	1	0

Question Q02

How important is it to you to live close to the Long Island Sound?

	LI	Westchester	Bronx & Queens	Connecticut
Very important	30%	14%	14%	20%
Somewhat important	35	26	17	29
Not very important	17	18	21	23
Not at all important	17	36	46	27
Don't know	1	7	3	2
Refused	0	0	0	0

Question Q03

From a health perspective, how safe do you think it is for adults and children to swim in the Long Island Sound?

	LI	Westchester	Bronx & Queens	Connecticut
Very safe	22%	2%	7%	11%
Somewhat safe	37	34	29	46
Somewhat unsafe	24	23	21	26
Very unsafe	8	18	18	8
Don't know	9	21	25	9
Refused	0	1	0	0

Question Q04

How safe is it to eat fish and shellfish from the Long Island Sound?

	LI	Westchester	Bronx & Queens	Connecticut
Very safe	20%	2%	12%	7%
Somewhat safe	34	25	24	41
Somewhat unsafe	17	21	20	27
Very unsafe	19	24	22	12
Don't know	11	26	23	13
Refused	0	1	0	0

Question Q05

Do you think the quality of the water in the Long Island Sound is:

	LI	Westchester	Bronx & Queens	Connecticut
Excellent	3%	0%	4%	2%
Good	37	13	17	28
Fair	33	44	39	44
Poor	18	22	23	18
Don't know	9	20	17	8
Refused	0	1	0	0

Question Q06

Compared to five years ago, do you think the quality of the water in the Long Island Sound is:

	LI	Westchester	Bronx & Queens	Connecticut
Much better	6%	8%	9%	9%
Somewhat better	21	18	19	20
Somewhat worse	17	7	8	10
Much worse	4	3	5	4
About the same	37	30	32	40
Don't know	14	34	28	16
Refused	0	1	0	0

Question Q07a

[Only asked of respondents who thought the quality of water had gotten better in the previous question]

What do you think is the main reason why the quality of water in the Long Island Sound is BETTER than it was five years ago?

[Open-ended question, with recoded responses]

	LI	Westchester	Bronx & Queens	Connecticut
Additional Legislation and Policies	28%	2%	17 %	14%
Public Awareness	23	19	29	33
Increased Clean-Up & Pollution Efforts	25	56	29	27
Improved Sewage & Industrial Waste				
Disposal; Less Dumping	4	10	8	20
Run off Controls Improved	3	0	-	1
Other	16	13	17	6

Question Q07b

[Only asked of respondents who thought the quality of water had gotten worse in the Question Q06.]

What do you think is the main reason why the quality of water in the Long Island Sound is WORSE than it was five years ago?

[Open-ended question, with recoded responses]

	LI	Westchester	Bronx & Queens	Connecticut
Increased Pollution	31%	77%	38%	28%
Dumping Garbage; More Sewage;				
Runoff from land	16	0	35	27
Boating; Overuse of Sound	18	12	13	4
Industrialization; Population increase	12	0	10	16
Other	23	12	4	25

Question Q08

Do you live within a mile of a freshwater river, creek, stream, or brook?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	35%	58%	32%	73%
No	62	40	64	25
Don't know	3	1	4	3
Refused	0	0	0	0

Question Q09

[Only asked of respondents who answered "yes" to Question Q08.]

Compared to five years ago, do you think the quality of the water in your local river, creek, stream or brook is:

	LI	Westchester	Bronx & Queens	Connecticut
Much better	2%	7%	13%	8%
Somewhat better	5	19	28	15
Somewhat worse	17	15	18	11
Much worse	2	14	7	5
About the same	51	33	31	53
Don't know	23	11	4	9
Refused	0	2	0	0

Question Q10

Compared to ten years ago, do you think that the amount of litter along the shores of the Long Island Sound including plastic bags, balloons, cigarette butts, cans, and wrappers has increased, decreased, or stayed the same?

	LI	Westchester	Bronx & Queens	Connecticut
Increased	27%	45%	23%	31%
Decreased	23	18	35	27
About the same	33	14	18	25
Don't know	16	23	23	17
Refused	0	1	0	0

Question Q11

Last SUMMER, how often, if ever, did you personally swim in the Long Island Sound?

	LI	Westchester	Bronx & Queens	Connecticut
More than once a week	3%	1%	1%	5%
Once a week	4	1	1	3
A few times a month	12	1	5	6
About once a month	9	1	1	8
A few times but less than once a month	13	9	10	9
Never	57	76	71	62
Respondent has NEVER been to the Long Island Sound	0	5	6	4
Don't know	1	3	3	2
Refused	0	1	0	0

Question Q12

LAST SUMMER, how often, if ever, did you go to the Long Island Sound to sit at the beach, have a picnic, or just enjoy the view?

	LI	Westchester	Bronx & Queens	Connecticut
More than once a week	17%	11%	3%	12%
Once a week	7	3	2	8
A few times a month	20	6	9	16
About once a month	9	12	8	9
A few times but less than once a month	19	15	18	25
Never	26	47	56	28
Respondent has NEVER been to the Long Island Sound	1	0	0	0
Don't know	1	4	3	2
Refused	0	1	0	0

Question Q13

LAST SUMMER, how often, if ever, did you go motor boating, sailing, kayaking or canoeing on the Long Island Sound?

	LI	Westchester	Bronx & Queens	Connecticut
More than once a week	5%	3%	0%	5%
Once a week	6	2	0	4
A few times a month	8	3	3	7
About once a month	4	1	1	5
A few times but less than once a month	15	7	3	9
Never	61	80	88	67
Respondent has NEVER been to the Long Island Sound	0	0	1	0
Don't know	1	3	3	2
Refused	0	1	0	0

Question Q14

LAST SUMMER, how often, if ever, have you hiked or walked along the shores or in a natural area on the Long Island Sound?

	LI	Westchester	Bronx & Queens	Connecticut
More than once a week	9%	6%	1%	7%
Once a week	7	2	4	6
A few times a month	16	6	4	14
About once a month	8	9	6	8
A few times but less than once a month	20	12	17	19
Never	39	60	63	42
Respondent has NEVER been to the Long Island Sound	0	0	0	0
Don't know	1	3	4	2
Refused	0	1	0	0

Question Q15

LAST SUMMER, how often, if ever, have you fished, gone clamming, or collected other shellfish in the Long Island Sound?

	LI	Westchester	Bronx & Queens	Connecticut
More than once a week	6%	0%	0%	3%
Once a week	4	2	1	4
A few times a month	6	0	2	5
About once a month	3	0	1	2
A few times but less than once a month	7	5	5	7
Never	73	89	87	78
Respondent has NEVER been to the Long Island Sound	0	0	0	0
Don't know	1	3	4	2
Refused	0	1	0	0

Question Q16

LAST SUMMER, did you visit or use the Sound more often, less often, or about the same as you would in a typical year?

	LI	Westchester	Bronx & Queens	Connecticut
More often	12%	4%	6%	10%
Less often	18	35	21	19
About the same	67	42	60	65
Respondent has NEVER been to the Long Island Sound	2	3	7	2
Don't know	2	15	6	3
Refused	0	2	0	0

[Split-Sample Design: Respondents were randomly assigned into two groups based on a random variable. Half of the respondents received question Q37 and Q38 prior to Q17 through Q36]

Question Q17

Do you typically wash your car, motorcycle, or other motor vehicle at home or at a car wash?

	LI	Westchester	Bronx & Queens	Connecticut
At home	39%	22%	12%	37%
Car wash	57	61	50	53
Never wash car	2	2	1	3
Don't own a car or motorcycle	1	13	35	6
Don't know	1	1	1	1
Refused	0	0	1	0

Question Q18

[Question asked only of those respondents specifying that they washed their cars at home.]

Do you typically wash your vehicle in a grassy area, in a driveway, walkway or in another surfaced area?

	LI	Westchester	Bronx & Queens	Connecticut
Grassy area	2%	1%	0%	3%
Driveway	94	98	84	90
Other surfaced area	3	1	13	6
Somewhere else	0	0	4	1
Don't know	0	0	0	0
Refused	0	0	0	0

Question Q19

Do you have a lawn or outdoor garden at your home that your household is responsible for?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	85%	53%	26%	77%
No	15	47	73	23
Don't know	-	-	1	-
Refused	-	-	-	-

Question Q20*[Question asked only of those respondents specifying “yes” in Question Q21.]*

Is your lawn or outdoor garden maintained by:

	LI	Westchester	Bronx & Queens	Connecticut
You and/or members of your household	53%	62%	61%	77%
A gardening service	27	24	20	9
Members of your household and a gardening service	19	14	14	10
Someone else	0	0	5	3
Don't know	0	0	0	1
Refused	0	0	0	0

Question Q21*[Question asked only of those respondents specifying “yes” in Question Q19.]*

How often do you (or your gardening service) fertilize your lawn or garden?

	LI	Westchester	Bronx & Queens	Connecticut
Several times a year	49%	48%	45%	30%
Once a year	31	26	27	35
Less than once a year	2	7	9	6
Never	13	18	11	26
Don't know	5	1	9	3
Refused	0	0	0	0

Question Q22*[Question asked only of those respondents specifying “yes” in Question Q19.]*

Compared to five years ago, do you (or your gardening service) fertilize your lawn:

	LI	Westchester	Bronx & Queens	Connecticut
More often	5%	9%	4%	10%
Less often	11	11	8	15
About the same	74	77	78	65
Don't know	8	3	11	10
Refused	1	0	0	0

Question Q23*[Question asked only of those respondents specifying “yes” in Question Q19.]*

People typically use one of two types of fertilizer on their lawns. One is a quick release or water soluble fertilizer that makes the nitrogen immediately available to plants. The other is a slow release fertilizer that can be natural/organic or man-made and releases nitrogen slowly over time. Do you use the quick or slow product?

	LI	Westchester	Bronx & Queens	Connecticut
Quick release or water soluble fertilizer	19%	15%	29%	23%
Slow release fertilizer	34	36	33	39
Don't know	46	49	38	37
Refused	1	0	0	1

Question Q24*[Question asked only of those respondents specifying “yes” in Question Q21.]*

When you (or your garden service) mow your lawn do you leave the grass clippings on your lawn?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	51%	30%	29%	60%
No	46	69	65	36
Don't know	4	1	6	3
Refused	-	-	1	-

Question Q25*[Question asked only of those respondents specifying “yes” in Question Q21.]*

Have you (or your garden service) ever added compost to the soil?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	35%	43%	31%	33%
No	54	53	55	61
Don't know	12	4	13	6
Refused	0	0	0	0

Question Q26

Does anyone in your household have a dog?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	39%	13%	10%	37%
No	61	87	90	63
Don't know	0	0	0	0
Refused	0	0	0	0

Question Q27*[Question asked only of those respondents specifying “yes” in Question Q26.]*

Do you or does someone else ever take the dog to a beach on the Long Island Sound?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	37%	8%	1%	21%
No	63	92	99	78
Don't know	0	0	0	1
Refused	0	0	0	0

Question Q28*[Question asked only of those respondents specifying “yes” in Questions Q26 and Q27.]*

How often does the person who takes the dog to the beach pick up the dog's droppings?

	LI	Westchester	Bronx & Queens	Connecticut
Always	85%	100%	100%	77%
Most of the time	4	0	0	16
Some of the time	5	0	0	0
Occasionally	1	0	0	6
Never	4	0	0	1
Don't know	0	0	0	0
Refused	1	0	0	0

Question Q29*[Question asked only of those respondents specifying “yes” in Question Q26.]*

How often does the person who walks the dog in your neighborhood pick up the dog's droppings?

	LI	Westchester	Bronx & Queens	Connecticut
Always	69%	75%	69%	56%
Most of the time	8	9	0	6
Some of the time	2	0	21	2
Occasionally	1	6	0	3
Never	10	10	2	25
Don't walk dog	6	0	7	6
Don't know	3	0	0	1
Refused	0	0	0	0

Note: For Question Q30, respondents were given different choice sets where the options were scrambled. A random variable was used to assign respondents to different response sets.

Question Q30*[Question asked only of those respondents specifying “yes” in Question Q26]*

How are your dog's droppings usually disposed of once they have been collected:

	LI	Westchester	Bronx & Queens	Connecticut
Put in the trash	77%	69%	73%	56%
Flushed down the toilet	5	5	8	1
Composted	9	2	0	26
Something else	4	16	19	12
Don't know	5	8	0	6
Refused	0	0	0	0

Question Q31

In your neighborhood, have you ever SEEN or USED a dogipot or pet waste station to get a pet waste collection bag or to dispose of pet waste?

[IF NECESSARY: Some areas have installed pet waste stations in local parks and in areas near the water.]

	LI	Westchester	Bronx & Queens	Connecticut
Yes	10%	17%	9%	9%
No	88	83	90	90
Don't know	2	0	*	*
Refused	0	0	0	0

Question Q32

Do you or does someone else EVER change the oil in one of your household vehicles at YOUR HOME?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	21%	8%	9%	24%
No	77	82	62	74
Do not own a car or motorcycle	1	10	25	1
Don't know	0	0	3	1
Refused	0	0	1	0

Note: For Question Q33, respondents were given different choice sets where the options were scrambled. A random variable was used to assign respondents to different response sets.

Question Q33

[Question asked only of those respondents specifying "yes" in Question Q32]

How do you usually dispose of leftover motor or car oil [from an oil change]? Do you

	LI	Westchester	Bronx & Queens	Connecticut
Put it in the household garbage	11%	6%	12%	6%
Store it at home	0	0	0	4
Take it to a waste recycling center	79	94	42	78
Pour it down a sink or toilet	1	0	0	0
Pour it into a drain outside the house	0	0	21	1
Something else	2	0	14	7
Don't know	7	0	11	4
Refused	0	0	0	0

Question Q34

Does your home have a septic tank or cesspool on the property, or is it connected to a public sewer system?

	LI	Westchester	Bronx & Queens	Connecticut
Septic Tank or cesspool	63%	2%	2%	45%
Public Sewer System	32	86	82	52
Don't know	5	12	16	3
Refused	0	0	0	0

Question Q35

[Question asked only of those respondents specified having a “septic tank or cesspool” in Question Q34.]

When was your septic tank or cesspool last inspected?

	LI	Westchester	Bronx & Queens	Connecticut
Within the last 12 months	27%	84%	46%	29%
More than 12 months ago but less than three years	20	0	7	40
More than 3 years ago but less than 5	13	0	0	9
More than 5 years ago	19	0	0	8
Don't know	19	16	47	15
Refused	0	0	0	0

Question Q36

[Question asked only of those respondents specified having a “septic tank or cesspool” in Question Q34.]

How often is the septic tank or cesspool usually pumped or emptied out? Is it

	LI	Westchester	Bronx & Queens	Connecticut
Every year	13%	0%	46%	17%
Every 2 to 3 years	20	84	48	45
Every 4 to 5 years	14	0	0	10
Less often than every 5 years	33	0	6	8
Don't know	20	16	0	19
Refused	0	0	0	0

Question Q37

What would you say is the single greatest source of pollution affecting the Long Island Sound?

[Open-ended question, with recoded responses]

	LI	Westchester	Bronx & Queens	Connecticut
Garbage, Trash, Dumping	12%	22%	29%	19%
Sewage, Waste	6	8	5	11
Industries, Factories	16	20	5	12
Boats	11	13	6	9
Cars, Other Vehicles	4	3	7	7
Water Runoff	8	4	1	6
Fertilizers, Pesticides, Chemicals	7	6	3	3
Development, Urban-Related	2	2	1	2
Other (e.g., People, Pollution)	10	5	10	9
Don't Know / Refused	24	18	33	22

Note: For Question Q38, respondents were given different choice sets where the options were scrambled. A random variable was used to assign respondents to different response sets.

Question Q38

Which one of these is the single MOST important source of pollution in the Long Island Sound?

	LI	Westchester	Bronx & Queens	Connecticut
Industrial plants	19%	18%	18%	20%
Automobiles	4	2	16	4
Waste from dogs and other animals	1	0	8	2
Sewage treatment facilities	12	21	13	20
Boats	13	9	6	11
Lawn fertilizer	6	10	2	3
Water runoff into storm drains	17	12	8	18
Commercial and residential Development	14	16	15	12
Don't know	14	12	14	9
Refused	0	0	0	0

Note: For Question Q39, respondents were given different choice sets where the options were scrambled. A random variable was used to assign respondents to different response sets.

Question Q39

A storm drain is often found as an opening under the curb, or a grate along the edge of the street, and it is where rain water is directed after it washes off roof tops, parking lots, and roads. As far as you know, where does MOST of the water in storm drains go? Does it

	LI	Westchester	Bronx & Queens	Connecticut
Go directly into Long Island Sound	24%	17%	20%	34%
Go to a sewage and water treatment plant	15	47	34	26
Seep into the ground	25	9	8	13
Something else	5	2	11	5
Don't know	32	25	27	21
Refused	0	0	0	0

Question Q40

Have you ever seen a storm drain marker, billboard, flier, or poster warning people that dumping car oil, paint, or other pollutants into storm drains harms Long Island Sound?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	21%	23%	11%	16%
No	78	76	86	83
Don't know	1	1	2	1
Refused	0	0	0	0

Question Q41

[Question asked only of those respondents specifying “yes” in Question Q40.]

If you can, please tell me the exact message on the billboard, flier, poster, or storm drain. If you can't remember exactly, use your own words to describe it.

[Open-ended question, with recoded responses]

Question Q42

Have you ever heard the term "watershed"?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	64 %	55%	39%	70%
No	36	45	60	30
Don't know	0	0	1	0
Refused	0	0	0	0

Note: For Question Q43, respondents were given different choice sets where the options were scrambled. A random variable was used to assign respondents to different response sets.

Question Q43

[Question asked only of those respondents specifying “yes” in Question Q42]

Is a watershed an area that:

	LI	Westchester	Bronx & Queens	Connecticut
Retains water like a swamp or a marsh	23%	12%	16%	22%
A land area that drains into a specific body of water	35	44	25	40
An area that feeds a water treatment plant	6	14	18	8
A small building where water is stored	3	2	13	4
None of the above	13	10	11	9
Don't know	20	18	16	17
Refused	0	0	0	0

Question Q44

How many days in the past week did you watch LOCAL TV news on stations such as Channel 12, WCBS, WABC or WNBC?

	LI	Westchester	Bronx & Queens	Connecticut
None	19%	21%	18%	20%
One Day	6	6	7	6
Two Days	5	14	6	9
Three Days	10	6	5	5
Four Days	5	2	4	10
Five Days	7	6	5	9
Six Days	1	1	2	1
Seven Days	46	43	51	39
Don't Know	2	0	3	0
Refused	0	0	1	0

Question Q45

How many days in the past week did you listen to local news radio?

	LI	Westchester	Bronx & Queens	Connecticut
None	37%	44%	42%	39%
One Day	8	5	3	7
Two Days	6	11	10	9
Three Days	7	4	6	5
Four Days	3	1	3	3
Five Days	6	7	3	8
Six Days	1	0	1	1
Seven Days	33	27	29	28
Don't Know	1	1	2	0
Refused	0	0	0	0

Question Q46

How many days in the past week did you read a local daily newspaper, such as Long Island Newsday, The Advocate, New London Day, the New Haven Register, the Daily News, or the New York Post?

	LI	Westchester	Bronx & Queens	Connecticut
None	28%	49%	27%	25%
One Day	8	9	16	15
Two Days	12	8	10	7
Three Days	3	5	7	8
Four Days	4	3	2	5
Five Days	4	0	5	4
Six Days	0	1	1	1
Seven Days	40	24	31	36
Don't Know	1	0	1	0
Refused	0	0	0	0

Question Q47

How often do you read news in a WEEKLY local newspaper?

	LI	Westchester	Bronx & Queens	Connecticut
Every week	49%	40%	36%	57%
A few times a month	7	5	15	10
Once a month	6	3	2	2
A few times a year	4	3	5	4
Never	32	49	40	25
Don't know	1	0	1	1
Refused	0	0	0	0

Question Q48

In the last 12 months, have you received a letter or email about a LOCAL issue from an ENVIRONMENTAL GROUP?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	27%	15%	15%	17%
No	68	84	85	80
Don't know	4	1	0	3
Refused	0	0	0	0

Question Q49

I am now going to read several statements. Please tell me how strongly you agree or disagree with each one.

Humans are severely abusing the environment. Do you:

	LI	Westchester	Bronx & Queens	Connecticut
Agree strongly	56%	61%	58%	50%
Agree somewhat	32	29	26	34
Disagree somewhat	7	5	8	11
Disagree strongly	3	1	4	5
Don't know	1	5	3	0
Refused	0	0	0	0

Question Q50

The balance of nature is strong enough to cope with the impacts of modern industrial nations. Do you:

	LI	Westchester	Bronx & Queens	Connecticut
Agree strongly	6%	9%	14%	4%
Agree somewhat	18	21	18	20
Disagree somewhat	30	17	29	30
Disagree strongly	43	48	33	42
Don't know	3	6	6	4
Refused	1	0	0	0

Question Q51

The so-called "ecological crisis" facing humankind has been greatly exaggerated. Do you:

	LI	Westchester	Bronx & Queens	Connecticut
Agree strongly	10%	16%	21%	9%
Agree somewhat	20	22	27	26
Disagree somewhat	28	31	20	27
Disagree strongly	39	25	24	37
Don't know	4	6	7	1
Refused	0	0	0	0

Question Q52

If things continue on their present course, we will soon experience a major ecological catastrophe. Do you:

	LI	Westchester	Bronx & Queens	Connecticut
Agree strongly	32%	41%	48%	38%
Agree somewhat	38	27	32	35
Disagree somewhat	18	22	10	17
Disagree strongly	6	4	6	7
Don't know	5	7	4	3
Refused	0	0	0	0

Note: For Question Q53, respondents were given different choice sets where the options were scrambled. A random variable was used to assign respondents to different response sets.

Question Q53

Which is more important to you personally?

	LI	Westchester	Bronx & Queens	Connecticut
Protecting the environment	68%	80%	70%	76%
Encouraging economic growth	16	15	21	14
Don't know	13	4	8	9
Refused	3	2	1	2

Question Q54

Do you think there is anything that you do now as part of your everyday behavior that worsens the quality of water in the Long Island Sound?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	26%	26%	16%	19%
No	68	71	75	77
Don't know	6	3	8	4
Refused	1	0	1	0

Question Q55

Do you think there is any change you could make in your everyday behavior that would help to improve the quality of water in the Long Island Sound?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	35%	47%	35%	34%
No	55	1	48	61
Don't know	10	2	17	5
Refused	0	0	0	0

Question Q56

In your view, if MOST local residents changed their everyday behavior, how much would it improve the quality of water in the Long Island Sound?

	LI	Westchester	Bronx & Queens	Connecticut
A great deal	34%	48%	47%	33%
Some	39	32	26	40
Not much	10	2	4	8
A little	7	9	9	10
Or, none	3	2	5	2
Don't know	7	7	9	7
Refused	1	0	0	0

Note: For Question Q57, respondents were given different choice sets where the options were scrambled. A random variable was used to assign respondents to different response sets.

Question Q57

Now, I would like to ask a few questions about environmental issues.

What is the main source of water pollution in the United States?

	LI	Westchester	Bronx & Queens	Connecticut
Dumping of garbage by cities	19%	19%	23%	17%
Surface water running off yards, city streets. . .	17	13	9	22
Trash washed into the ocean from beaches	5	5	10	8
Waste dumped by factories	49	61	48	45
Don't know	9	2	10	8
Refused	1	0	0	0

Note: For Question Q58, respondents were given different choice sets where the options were scrambled. A random variable was used to assign respondents to different response sets

Question Q58

Carbon monoxide is a major contributor to air pollution in the US. Which of the following is the biggest source of carbon monoxide?

	LI	Westchester	Bronx & Queens	Connecticut
Factories and businesses	21%	25%	23%	25%
People breathing	1	1	5	2
Motor vehicles	74	66	65	69
Trees	1	2	2	2
Don't know	3	5	5	3
Refused	0	0	0	0

Note: For Question Q59, respondents were given different choice sets where the options were scrambled. A random variable was used to assign respondents to different response sets.

Question Q59

Thinking about the country as a whole, how is most of the electricity in the U.S. generated?

	LI	Westchester	Bronx & Queens	Connecticut
By burning fossil fuels such as coal and oil	69%	40%	32%	51%
With nuclear power	6	19	15	13
Through solar energy	1	5	10	1
At hydro-electric power plants	17	27	25	23
Don't know	8	9	18	11
Refused	0	0	0	0

Note: For Question Q60, respondents were given different choice sets where the options were scrambled. A random variable was used to assign respondents to different response sets.

Question Q60

Most lawn fertilizers contain phosphorous and nitrogen which in excess can be damaging to the environment. Which of the following is the major environmental impact of phosphorous and nitrogen?

	LI	Westchester	Bronx & Queens	Connecticut
They are poisonous to fish	15%	24%	32%	25%
They have an unpleasant smell	3	1	7	3
They promote excess plant and algae growth	24	24	9	22
They pollute drinking water	34	18	27	28
Don't know	23	33	24	22
Refused	0	0	1	0

Note: For Question Q61, respondents were given different choice sets where the options were scrambled. A random variable was used to assign respondents to different response sets.

Question Q61

What is the primary benefit of wetlands? Do they ..

	LI	Westchester	Bronx & Queens	Connecticut
Promote flooding	3%	7%	10%	9%
Help clean water before it enters lakes, streams, rivers	59	57	34	59
Help keep the number of undesirable plants and animals low	7	5	11	8
Provide good sites for landfills	1	3	9	4
Don't know	30	28	35	20
Refused	0	0	0	0

Question Q62

Does your household recycle glass and plastic products:

	LI	Westchester	Bronx & Queens	Connecticut
All of the time	66%	74%	60%	67%
Most of the time	18	11	19	15
Some of the time	5	10	9	5
Occasionally	3	0	4	5
Almost never	7	5	7	8
Don't know	1	0	0	1
Refused	0	-	-	-

Question Q63

Does your household recycle paper products:

	LI	Westchester	Bronx & Queens	Connecticut
All of the time	60%	63%	59%	56%
Most of the time	15	15	17	16
Some of the time	8	5	8	9
Occasionally	6	0	3	5
Almost never	10	17	12	13
Don't know	1	0	0	1
Refused	0	0	0	0

Question Q64

When you purchase paper products for your household, how often do you buy products made from recycled materials?

	LI	Westchester	Bronx & Queens	Connecticut
All of the time	8%	13%	16%	9%
Most of the time	25	18	20	25
Some of the time	31	23	29	32
Occasionally	20	19	18	19
Almost never	7	16	10	6
Don't know	9	10	8	9
Refused	-	-	-	*

Question Q65

Are you a member of any group whose main aim is to preserve or protect the environment?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	14%	9%	7%	12%
No	86	89	93	88
Don't know	1	1	0	0
Refused	0	0	0	0

Question Q66

In the last five years, have you worked with others in your community to solve a local environmental problem?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	17%	15%	12%	15%
No	83	85	86	85
Don't know	0	0	2	1
Refused	0	0	0	0

Question Q67

Have you ever purchased an environmental license plate?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	1%	0%	2%	6%
No	99	100	98	93
Don't know	0	0	0	0
Refused	0	0	0	0

Question Q68

Finally, I have just a few questions about your background. I want to assure you that all your responses are completely confidential and will only be used to report group averages.

Do you own the home you are currently living in, are you renting, or do you have some other type of arrangement?

	LI	Westchester	Bronx & Queens	Connecticut
Own	77%	46%	27%	69%
Renting	12	49	66	20
Other arrangement	10	4	7	11
Don't know	0	0	0	0
Refused	1	0	0	0

Question Q69

Do you currently live in a:

	LI	Westchester	Bronx & Queens	Connecticut
Single family home	88%	51%	24%	76%
Condominium	2	11	8	6
Apartment	8	34	63	14
Townhouse	0	2	2	2
Something else	1	2	2	2
Don't know	0	0	0	0
Refused	0	0	0	0

Question Q70

How many years have you lived in your current community?

[Open-ended question, with recoded responses]

	LI	Westchester	Bronx & Queens	Connecticut
0 to 9 yrs	32%	53%	42%	45%
10 to 25 yrs	38	19	39	31
More than 25 yrs	29	26	18	22
Don't Know	0	1	0	0
Refused	0	0	1	1

Question Q71

Age Categories:

[Recoded responses]

	LI	Westchester	Bronx & Queens	Connecticut
18 to 34	24%	28%	36%	28%
35 to 44	23	22	21	23
45 to 54	20	18	16	19
55 to 64	14	13	11	12
65 or older	19	19	16	18

Question Q72

Education Categories:

[Recoded responses]

	LI	Westchester	Bronx & Queens	Connecticut
No High School Diploma	9%	18%	31%	16%
High School Diploma or equivalent	21	23	26	28
Some College or Associates Degree	27	22	23	25
Bachelors Degree or above	43	37	20	31

Question Q73

Which of the following income categories best describes the total 2005 household income of all members of your family living there before taxes? Stop me when I reach your income group. Was it

	LI	Westchester	Bronx & Queens	Connecticut
Less than \$20,000	2%	2%	15%	6%
\$20,000 to less than \$35,000	4	13	21	9
\$35,000 to less than \$60,000	11	28	17	16
\$60,000 to less than \$80,000	7	12	14	13
\$80,000 to less than \$100,000	15	9	5	10
\$100,000 to less than \$120,000	8	5	2	12
\$120,000 to less than \$150,000	11	7	1	5
\$150,000 or more	19	11	2	9
Don't know, Refused	23	14	22	20

Question Q74

Are you Hispanic or Latino/Latina?

	LI	Westchester	Bronx & Queens	Connecticut
YES	8%	28%	40%	8%
NO	91	71	60	91
Don't know	0	0	0	0
Refused	1	0	0	1

Question Q75

Do you consider yourself White, Black, Asian or something else?

	LI	Westchester	Bronx & Queens	Connecticut
White	86%	61%	30%	81%
Black, African American	0	9	24	8
Hispanic, Latino	2	23	31	4
Asian	3	6	7	1
Pacific Islander	0	0	0	0
Native American or Alaskan Native	1	0	0	1
Black and another category	2	0	2	1
Don't know	2	0	4	1
Refused	3	1	2	3

Question Q76

Are you married; not married but living with a partner; separated; divorced; widowed; or have you never been married?

	LI	Westchester	Bronx & Queens	Connecticut
Married	63%	38%	31%	53%
Not married, living with a partner	4	9	16	5
Separated	1	7	5	1
Divorced	6	5	9	9
Widowed	8	9	7	8
Never married	16	30	32	21
Don't know	0	0	0	1
Refused	1	1	2	2

Question Q79

How would you describe the area where you live now:

	LI	Westchester	Bronx & Queens	Connecticut
Large city	4%	13%	64%	9%
Suburb of a large city	49	31	17	16
Small city	10	36	10	25
Suburb of a small city	25	15	3	22
Rural area	10	2	6	27
Don't know	2	2	0	1
Refused	0	1	0	0

Question Q80

And finally one last question. Occasionally a news reporter needs to talk to people about some of the topics in our survey. Would you be willing to speak with a reporter, and allow us to share your responses with the reporter?

	LI	Westchester	Bronx & Queens	Connecticut
Yes	26%	32%	35%	34%
No	74	68	65	66

Question GOODBYEC

Thank you for your cooperation and time. This completes our survey. For further information on the survey, you can call Linda Pfeiffer, Director of Operations of the Center at 631-632-4006, or Judy Matuk, Committee on Research Involving Human Subjects at Stony Brook (631) 632-9036 about your rights as a participant.

The Long Island Sound Study is a partnership of public, private, and non-profit groups dedicated to restoring and protecting the Sound. You can get more information about the organization on their web site at www.longislandsoundstudy.net.

If you are interested in contacting them directly, I can also give you their email address and phone numbers.

Question GENDER

Respondents Gender:

	LI	Westchester	Bronx & Queens	Connecticut
Male	48	46	46	47
Female	52	54	54	53

Appendix 2

OUTCOME NUMBER AND TITLE:

5. DEVELOP AND CONDUCT A PUBLIC PERCEPTION SURVEY OF LIS RESIDENTS

Cost Estimate/Range: \$50,000-\$100,000

Project Duration/Period: October 1, 2005 through September 30, 2006

LIS2003 Commitments

Supported:

Promote an informed and educated constituency involved in community decisions affecting the ecological health of Long Island Sound and its living resources.

Additional Evaluation Criteria: None.

Expected Outcomes: Collect, analyze, and integrate information from residents of the watershed in both NY and CT about perceptions, knowledge, attitudes, and behaviors that can be used to better design and implement effective outreach and education strategies.

Expected Methodology: Survey approaches will be refined in consultation with the LISS Communications Team, but the survey design should include the following:

1. To meet the 2014 goals of the Long Island Sound Study is it critical to take specific actions to raise the level of resident involvement?
2. What is the best way to reach residents of the watershed with LIS information?
3. What is seen as the key pollution issue for the Sound?
4. What information is needed by residents to help them make environmentally sound decisions?
5. How knowledgeable are residents to the terms estuary, watershed, storm water runoff, and the Long Island Sound Study?

The data should be organized by watershed, state, county or town and by distance to the coast and include demographics consistent with the population of the Sound. The survey should also identify how people obtain their information about LIS (TV, paper, direct mail, local organization). Survey topics should include nitrogen, habitat restoration, invasive species.

Survey instrument may consist of generally acceptable industry standard practice methodologies for written, telephonic, or other public opinion polls.

Design of survey to be coordinated with the LISS communications coordinator and work group.

Deliverables: Draft and final survey instruments; summary report of results, including potential management implications of resulting data presentations to managers and stakeholders.

Contact: Robert Burg, Communications Coordinator

c/o EPA Long Island Sound Office

888 Washington Blvd, Suite 6-5

Stamford, CT 06904-2152

203 977-1541

rburg@longislandsoundstudy.net

Appendix 3

Figure A1: The Long Island Sound Watershed



Table A1: Sample Zip codes

LONG ISLAND		11767 NESCONSET	10552 MOUNT VERNON
11020 GREAT NECK		11768 NORTHPORT	10553 MOUNT VERNON
11021 GREAT NECK		11771 OYSTER BAY	10573 PORT CHESTER
11023 GREAT NECK		11777 PORT JEFFERSON	10576 POUND RIDGE
11024 GREAT NECK		11778 ROCKY POINT	10577 PURCHASE
11030 MANHASSET		11780 SAINT JAMES	10580 RYE
11042 NEW HYDE PARK		11786 SHOREHAM	10583 SCARSDALE
11050 PORT WASHINGTON		11787 SMITHTOWN	10590 SOUTH SALEM
11542 GLEN COVE		11788 HAUPPAUGE	10594 THORNWOOD
11545 GLEN HEAD		11789 SOUND BEACH	10595 VALHALLA
11547 GLENWOOD LANDING		11790 STONY BROOK	10601 WHITE PLAINS
11548 GREENVALE		11791 SYOSSET	10603 WHITE PLAINS
11560 LOCUST VALLEY		11792 WADING RIVER	10604 WEST HARRISON
11576 ROSLYN		11797 WOODBURY	10605 WHITE PLAINS
11577 ROSLYN HEIGHTS		11952 MATTITUCK	10606 WHITE PLAINS
11579 SEA CLIFF			10607 WHITE PLAINS
11709 BAYVILLE		WESTCHESTER	10701 YONKERS
11721 CENTERPORT		10502 ARDSLEY	10704 YONKERS
11724 COLD SPRING HARBOR		10504 ARMONK	10705 YONKERS
11725 COMMACK		10506 BEDFORD	10707 TUCKAHOE
11732 EAST NORWICH		10523 ELMSFORD	10708 BRONXVILLE
11733 EAST SETAUKET		10528 HARRISON	10709 EASTCHESTER
11740 GRE		10530 HARTSDALE	10710 YONKERS
11743 HUNTINGTON		10532 HAWTHORNE	10801 NEW ROCHELLE
11754 KINGS PARK		10538 LARCHMONT	10803 PELHAM
11764 MILLER PLACE		10543 MAMARONECK	10804 NEW ROCHELLE
11765 MILL NECK		10550 MOUNT VERNON	10805 NEW ROCHELLE

BRONX and QUEENS		11377	WOODSIDE	06437	GUILFORD
10451	BRONX	11378	MASPETH	06438	HADDAM
10452	BRONX	11379	MIDDLE VILLAGE	06441	HIGGANUM
10453	BRONX	11385	RIDGEWOOD	06442	IVORYTON
10454	BRONX	11415	KEW GARDENS	06443	MADISON
10455	BRONX	11421	WOODHAVEN	06450	MERIDEN
10456	BRONX	11423	HOLLIS	06451	MERIDEN
10457	BRONX	11427	QUEENS VILLAGE	06455	MIDDLEFIELD
10458	BRONX	11432	JAMAICA	06457	MIDDLETOWN
10459	BRONX	CONNECTICUT		06460	MILFORD
10460	BRONX	06254	NORTH FRANKLIN	06468	MONROE
10461	BRONX	06320	NEW LONDON	06469	MOODUS
10462	BRONX	06330	BALTIC	06470	NEWTOWN
10463	BRONX	06333	EAST LYME	06471	NORTH BRANFORD
10464	BRONX	06334	BOZRAH	06472	NORTHFORD
10465	BRONX	06335	GALES FERRY	06473	NORTH HAVEN
10466	BRONX	06336	GILMAN	06475	OLD SAYBROOK
10467	BRONX	06339	LEDYARD	06477	ORANGE
10468	BRONX	06340	GROTON	06478	OXFORD
10469	BRONX	06351	JEWETT CITY	06480	PORTLAND
10470	BRONX	06355	MYSTIC	06481	ROCKFALL
10471	BRONX	06357	NIANTIC	06482	SANDY HOOK
10472	BRONX	06359	NORTH STONINGTON	06483	SEYMOUR
10473	BRONX	06360	NORWICH	06484	SHELTON
10474	BRONX	06365	PRESTON	06488	SOUTHBURY
10475	BRONX	06370	OAKDALE	06490	SOUTHPORT
11005	FLORAL PARK	06371	OLD LYME	06492	WALLINGFORD
11101	LONG ISLAND CITY	06375	QUAKER HILL	06498	WESTBROOK
11102	ASTORIA	06376	SOUTH LYME	06504	NEW HAVEN
11103	ASTORIA	06378	STONINGTON	06510	NEW HAVEN
11104	SUNNYSIDE	06379	PAWCATUCK	06511	NEW HAVEN
11105	ASTORIA	06380	TAFTVILLE	06512	EAST HAVEN
11106	ASTORIA	06382	UNCASVILLE	06513	NEW HAVEN
11354	FLUSHING	06384	VOLUNTOWN	06514	HAMDEN
11355	FLUSHING	06385	WATERFORD	06515	NEW HAVEN
11356	COLLEGE POINT	06401	ANSONIA	06516	WEST HAVEN
11357	WHITESTONE	06403	BEACON FALLS	06517	HAMDEN
11358	FLUSHING	06405	BRANFORD	06518	HAMDEN
11360	BAYSIDE	06409	CENTERBROOK	06519	NEW HAVEN
11361	BAYSIDE	06410	CHESHIRE	06524	BETHANY
11362	LITTLE NECK	06412	CHESTER	06525	WOODBIDGE
11363	LITTLE NECK	06413	CLINTON	06604	BRIDGEPORT
11364	OAKLAND GARDENS	06415	COLCHESTER	06605	BRIDGEPORT
11365	FRESH MEADOWS	06416	CROMWELL	06606	BRIDGEPORT
11366	FRESH MEADOWS	06417	DEEP RIVER	06607	BRIDGEPORT
11367	FLUSHING	06418	DERBY	06608	BRIDGEPORT
11368	CORONA	06419	KILLINGWORTH	06610	BRIDGEPORT
11369	EAST ELMHURST	06420	SALEM	06611	TRUMBULL
11370	EAST ELMHURST	06422	DURHAM	06612	EASTON
11371	FLUSHING	06423	EAST HADDAM	06614	STRATFORD
11372	JACKSON HEIGHTS	06424	EAST HAMPTON	06615	STRATFORD
11373	ELMHURST	06426	ESSEX	06702	WATERBURY
11374	REGO PARK	06430	FAIRFIELD	06704	WATERBURY
11375	FOREST HILLS	06432	FAIRFIELD	06705	WATERBURY
				06706	WATERBURY

06708	WATERBURY
06710	WATERBURY
06712	PROSPECT
06716	WOLCOTT
06762	MIDDLEBURY
06770	NAUGATUCK
06784	SHERMAN
06801	BETHEL
06804	BROOKFIELD
06807	COS COB
06810	DANBURY
06811	DANBURY
06812	NEW FAIRFIELD
06820	DARIEN
06830	GREENWICH
06831	GREENWICH
06840	NEW CANAAN
06850	NORWALK
06851	NORWALK
06853	NORWALK
06854	NORWALK
06855	NORWALK
06870	OLD GREENWICH
06877	RIDGEFIELD
06878	RIVERSIDE
06880	WESTPORT
06883	WESTON
06896	WEST REDDING
06897	WILTON
06901	STAMFORD
06902	STAMFORD
06903	STAMFORD
06905	STAMFORD
06906	STAMFORD
06907	STAMFORD