

The General Public: Who are They and What do They Think?

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Introduction

For years the Maine Department of Environmental Protection (DEP) has spent money "educating" the 'general public' without having a clear idea of who they were, what they believed, and what they were willing to do. We blindly felt that if we gave the facts in a handout the general public would just do the right thing. Since the majority of Maine's non-attainment waters are the result of nonpoint source (NPS) pollution, it is imperative that we effectively reach the general public and get them involved if we are to see improvements in Maine's waters. The limited funding that is allocated for education and outreach activities further challenges the job of improving water quality. Thus, what little money there is needs to be spent wisely.

The Maine State Planning Office (SPO) and DEP have also historically undertaken outreach efforts that have not had any clear indicators of success. There have been no before and after evaluations to see if our programs are effective. For these reasons, DEP & SPO, have teamed up and are undertaking a marketing approach to nonpoint source pollution (NPS) education & outreach. We started with purchasing questions on Market Decision's Fall Omnibus Survey (a market research firm in Maine) and have also participated in focus group interviews through NL Partners (a Maine advertising firm). While the focus groups provided feedback on the materials, themes and issues, the Omnibus Survey provided an overall awareness and behavioral picture of the 'general public'. Although neither of these methods directly evaluated our efforts, they do provide a picture of the combined influence of mass media, conservation organizations, government agencies and others.

The results reported in this paper are from the questions purchased on the Market Decisions Fall survey over a 4-year period. This is a statistically significant phone survey of approximately 400 households in Maine. There is a sampling error of 4.9%. The first question was repeated in all 4 years, the second question repeated 3 years and the last three were asked only in 1999.

Results

Question 1: What common practices and activities in homes and communities, other than factories, are you aware of that contribute to water pollution in Maine? (*Note: this is a top of the mind question.*)

Table 1. Four years of top answers to Omnibus Survey.

1996	1997	1998	1999
Don't know (34%)	Don't know (21%)	Don't know (33%)	Don't know (37%)
Septic systems (17%)	Septic systems (21%)	Septic systems (15%)	Septic systems (16%)
Household Chem. (12%)	Litter/trash (18%)	Auto oil/gas/antifreeze (11%)	Auto oil/gas/antifreeze (14%)
Litter/trash (12%)	Sludge/landfills (16%)	Sludge/landfills (10%)	Household Chem. (10%)
Auto oil/gas/antifreeze (10%)	Household Chem. (13%)	Boat pump-out (10%)	Fertilizer (9%)
Sludge/landfills (8%)	Auto oil/gas/antifreeze (12%)	Litter/trash (8%)	Pesticides/herbicide (9%)
Boat pump-out (7%)	Boat pump-out (12%)	Household Chem. (8%)	Agriculture (8%)
Agriculture (5%)	Pesticides/herbicide (10%)	Pesticides/herbicide(7%)	Litter/trash (8%)
Pesticides/herbicide (5%)	Fertilizer (8%)	Agriculture (7%)	Boat pump-out (8%)
Fertilizer (4%)	Agriculture (6%)	Fertilizer (6%)	Acid rain/air pollution (6%)

A few observations:

- Over the 4-year period, on average, 31% or almost a third of Maine's adult population was unable to name one source of pollution in their neighborhood! ("Don't know" was the most common response.)
- Sludge/landfills was mentioned in '96, '97 & '98 at 8%, 16% & 10%, but was never mentioned in the 1999 survey. (*I believe this follows the news coverage in Southern Maine regarding the licensing of sludge disposal sites.*)

- Although not mentioned in significant numbers (< 4.9%), MTBE, fluoride, sewage leaks/bacteria have all been mentioned over the years, but only during years which the news media covered the issue.

Question 2 (Asked for 3 years): The second question DEP asked on the survey was actually one question with 4 parts.

Part A: Have you planted vegetation to control runoff from you property to reduce water pollution around your home?

Table 2. Responses to planting vegetation to control runoff.

.	1996	1997	1998
Yes	45%	43%	48%
No	36%	41%	36%
Not applicable	19%	16%	16%

Selected Demographic Results: Rural residents were more likely to have planted vegetation, those living in Central Maine were least likely. Those most likely to say yes are between the ages of 35-54, more affluent, more educated, and owned a home.

Part B: Have you controlled eroding soil on your property or road to reduce water pollution around your home?

Table 3. Responses to controlling eroding soil.

.	1996	1997	1998
Yes	47%	41%	50%
No	28%	32%	31%
Not applicable	25%	26%	19%

Selected Demographic results: Those most likely to answer yes: rural residents, homeowners, be between the ages of 35-54, more affluent, and male.

Part C: Have you pumped your septic system within the last 3 to 5 years to reduce water pollution around your home?

Table 4. Responses to pumping the septic system.

.	1996	1997	1998
Yes	42%	41%	41%
No	20%	20%	20%
Not applicable	36%	38%	38%

Selected Demographic results: The responses to pumping their septic system out in the last 3-5 years were incredibly consistent over the three years. Those most likely to answer yes were rural residents and those with greater incomes.

Part D: Have you reduced pesticide and/or fertilizer use to reduce water pollution around your home?

Table 5. Responses to using less pesticides & fertilizer.

.	1996	1997	1998
Yes	53%	46%	51%
No	20%	18%	22%
Not applicable	27%	36%	26%

Selected Demographic results: Those most likely to answer no are urbanites, over 54 and male. Most likely to say yes are between 35-54 and female.

Comments: In reviewing the results of the behavior responses (the second 4 part question), it appears that people are willing to plant vegetation, pump out their septic systems and reduce chemical use even if they do not understand the connection to water quality. In other words, Maine residents do not seem opposed to the Best Management Practices; they may actually be doing them for reasons other than for water quality. The disturbing side of these results are the "No" answers. Realizing that the option of "Not Applicable" was available, what does it mean then that roughly 30% of the respondents said "No", they did not control eroding soil on their property or road? If they had no eroding soils or did not own any property, one would expect the "Not Applicable" answer. Did these people have areas on their property where there was soil erosion but they choose not to correct the problem?

If one assumes that the "No" respondent (20%) have not pumped their septic system in the last 3-5 years have septic systems (since they did not respond "Not Applicable"), then 20% of the septic systems in the state are not being properly maintained. Or on the positive side 80% are being properly maintained.

Question 3 (Only asked in 1999): What action can you personally take to reduce water pollution in Maine?

Table 6. What can they do to protect water quality?

Proper disposal of chemicals/laundry products/don't dump chemicals down drain	21.9%
Don't pollute lakes/rivers/streams/wetlands ²	12.5%
Spread awareness about polluting activities/contact legislators/vote to keep Maine waters clean	11.8%
Not use fertilizers/pesticides/ do organic farming	10.8%
Recycle/use more natural/environmentally safe products	9.6%
Proper disposal of oil/don't dump oil on ground/tune car so it doesn't leak	7.1%
Make sure septic system is in good condition/composting toilet	6.1%
There is nothing I can do	5.8%

The 5.8% who said, "there is nothing I can do" indicate a lack of ownership/personal responsibility and control over water quality.

² *Unfortunately this is not a specific action. I am not sure how to interpret this response.*

Table 7. Demographic differences in top pollution sources.

Top for Suburban	Top for Southern Maine	Top for Coastal Maine	Top for <35yrs	Top 35-54 years	Top for \$50k+	College Grad/more
Proper disposal of chemicals (29.3%)	Proper disposal of chemicals (19.4%)	Proper disposal of chemicals (21.5%)	Proper disposal of chemicals (25.4%)	Proper disposal of chemicals (26.6%)	Proper disposal of chemicals (25.4%)	Proper disposal of chemicals (21.6%)
Spread awareness about polluting activities (12.1%)	Not use fertilizers/pesticides (12.4%)	Not use fertilizers/pesticides (20.0%)	Recycle/use more natural (15.5%)	Not using fertilizers/pesticides (14.7%)	Not using fertilizers/pesticides (20.3%)	Not using fertilizers/pesticides (17.0%)
(Tied for third at 10.3%) <ul style="list-style-type: none"> Don't pollute lakes/rivers/streams/wetlands Not use fertilizers/pesticides Recycle/use more natural 	Spread awareness about polluting activities (11.6%)	(Tied for third at 10.8%) <ul style="list-style-type: none"> Don't pollute lakes/rivers/streams/wetlands Spread awareness about polluting activities Make sure septic system is in good condition 	Don't pollute lakes/rivers streams/wetlands (12.7%)	Spread awareness about polluting activities (14.1%)	Don't pollute lakes/rivers/streams/wetlands (12.7%)	Spread awareness about polluting activities (15%)
Proper disposal of oil (6.9%)	Recycle/use more natural (9.3%)	Recycle/use more natural (7.7%)	Proper disposal of oil (8.5%)	Don't pollute lakes/rivers/streams/wetlands (10.3%)	(Tied at 11.9%) <ul style="list-style-type: none"> Spread awareness about polluting activities Recycle/use more natural 	Recycle/use more natural (12.4%)
Tied at 5.2%) <ul style="list-style-type: none"> Make sure septic system is in good condition 	Proper disposal of oil (8.5%)	There is nothing I can do (6.2%)	Spread awareness about polluting activities (5.6%)	Recycle/use more natural (8.7%)	(Tied at 8.5%) <ul style="list-style-type: none"> Proper disposal of oil (8.5%) 	Make sure septic system in good condition (10.5%)

• There is nothing I can do					system is in good condition	
•	Don't pollute lakes/rivers/streams/wetlands (6.2%)	•	•	Proper disposal of oil (6.5%)	•	Don't pollute lakes/rivers/streams/wetlands (9.2%)
•	There is nothing I can do (6.2%)	•	•	Make sure septic system is in good condition (5.4%)	•	Proper disposal of oil (7.8%)
•	•	•	•	•	•	Conserve water in the household (5.9%)
•	•	•	•	•	•	There is nothing I can do (5.2%)

Selected Demographic results: The groups who feel the least responsible are suburban, southern & coastal Maine, and those with a college education. This is surprising, as one would assume that these groups would be more "tuned in". One possible explanation for the apparent apathy or indifference is that people in these groups may feel overwhelmed. Picking at the demographics further shows that the top pollution sources are not always the same if we break the responses down by different demographics (Table 7).

Question 4 (Only asked in 1999): Which one of the following pollutants do you think represents the greatest threat to water quality in Maine? Respondents were provided with 5 choices; fertilizer, failing septic systems, discharge from boats, eroded soil, spilled gas/oil, plus they had the option of "None of the Above" & "Don't Know". (This is a ranking or knowledge based question.)

Table 8. Greatest threat to water quality Maine.

Spilled gas/oil products	35.4%
Fertilizer	19.9%
Failing septic systems	17.7%
Waste discharge from boats	11.3%
Eroded soil	8.4%
None of the above	1.5%
Don't Know	5.7%
Refused to answer	0.2%

Selected Demographic results: Spilled gas/oil was mentioned less frequently by the suburban population than by urban, small town and rural resident. Urban (12.8%) and suburban residents(13.8%) were less likely than small town (22.6%) and rural residents (21.2%) to mention fertilizer as the greatest threat. However, urban residents were least likely to mention eroded soil. Failing septic systems was actually the second greatest threat according to suburban residence (22.4%) and they mentioned it more than the other residential populations. According to Northern residents (29.3%), fertilizers are the greatest threat to water quality. The younger respondents (<35 yrs) were the most likely to rate spilled gas/oil products the number one threat (53.5%), while the older respondents felt that spilled oil/gas were less of a threat to water quality (35-54 years 35.5%, and 55+ yrs 27.9%). Those with the least education (High school or less) ranked spilled gas/oil products 41.9% as serious threats while those with some college education 35.9% and College grad/more 28.8%.

Those with a college education stated fertilizers (28.8%) more than their two education counter parts (19.6% some college, 12.5% High school or less). The same trend holds for eroded soil, college education 13.1%, some college 8.7%, high school or less 3.8%. A

total of 7.4% either said none of the above, don't know or refused to answer the question. Don't know and Refused to answer were 5.9%. (Thus, indicating a lack of confidence in their knowledge of the subject. Also of note is the fact that it is only in questions 4 & 5 that respondents refuse to answer the question.)

Question 5 (Only asked in 1999): Which one of these do you think represents the second greatest threat to water quality in Maine?

Table 9. Second greatest threat to water quality in Maine.

Spilled gas/oil products	22.6%
Fertilizer	16.5%
Failing septic systems	15.2%
Waste discharge from boats	14.5%
Eroded soil	7.9%
None of the above	1.7%
Don't Know	2.5%
Refused to answer	19.2%

Selected Demographic results: 23.4% either said "None of the Above", "Don't Know" or refused to answer the question. (According to Market Decisions this shows the respondents feel a lack of knowledge.) Coastal residents (6.2%) were the most likely to say none of the above. Southern and northern residents (20.9% and 25.9%) were more likely to refuse to answer than Coastal and Central residents. Those making less than \$25k were more likely to refuse (21.5%) compared to those making more than 25k (16.6% and 16.9%).

Comments & Conclusions.

As seen by the varying demographic results, the 'general public' is actually a very diverse group and can not necessarily be treated as one unit with similar interests and levels of knowledge. The group most receptive to our message are college educated (17% of Maine's population), more affluent (18%), homeowners (70%), and between the ages of 35 and 55 (41%). If DEP were to target only this sub-audience we would be targeting only 4% of Maine's population. Obviously we will need to have a larger sub-audience if we are to be effective.

It is also important to note that according to the U.S. Census Bureau (1990), 58% of Maine's adult residents have a high school education or less. Education/outreach efforts that depend on literature (brochures, pamphlets) to provide readers with the facts and

them to draw their own conclusions ('to do the right thing') will most likely miss the majority of adult residents.

Reviews of the results of our last 2 questions (Questions 4 &5) show that a large number of people did not feel comfortable or knowledgeable enough to venture a guess as to what the greatest and second greatest threat to Maine's waters are even when they were supplied with options. Not only does the general public feel they lack the knowledge to identify water pollution in their neighborhood, but they also do not see themselves as part of the problem. Thirty-one percent cannot name a single pollutant in their neighborhood (including anything they might generate) and over 30% in Question 3 failed to identify a personal concrete action they could personally take to reduce the amount of pollution they generate. Yet, the legislature and DEP are moving to regulate individual activities. This gap in understanding most likely hinders voluntary efforts and could create a backlash against regulations that seem to have no real purpose.

In addition, questions 4 & 5 appear to demonstrate that the general public defines threats to water quality as dangerous, life threatening or toxic. Eroded soil, which Maine scientists believe is the greatest threat to water quality, is regarded as a minor threat (always the last choice). Could this be because soil does not have any apparent direct lethal consequences to humans? DEP's education/outreach efforts must address this apparent benign belief about soil erosion and deposition in Maine's waters.

Therefore, in order for DEP to be effective in improving and protecting the waters of the state of Maine, our education/outreach efforts need to provide information in a form that is understandable and accessible to those with a high school education or less, distributed such that 35-55 year olds will see/hear it, and encourage a personal connection to environmental stewardship. We have seen that news coverage of certain events does affect people's opinions of what is important or regarded as a threat. Thus, one possible approach the DEP can take to increase the effectiveness of our education/outreach efforts is to work more closely with the news media to raise the profile of water quality issues here in Maine. In addition, we plan to continue and expand our use of the science of marketing; no longer blindly producing pamphlets and brochures.