MAINE & NEW HAMPSHIRE COASTAL RESIDENT SURVEY: **TECHNICAL REPORT**

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EXECUTIVE SUMMARY

This report summarizes findings from the 2015 Maine and New Hampshire Coastal Resident Survey. The purpose of the survey was to gather information on the human dimensions of water quality: the survey investigated benefits associated with coastal water quality and focused on capturing economic and social values for this natural resource. We captured coastal residents' perceptions about water quality including benefits of water that is clear of pollution and free from contaminants, what factors detract from coastal water quality, and beliefs about who should be responsible for managing the resource.

Key findings include:

- 56.8 percent of respondents are willing to contribute, via an increase in monthly water/sewer/septic fees, to a hypothetical Coastal Water Quality Improvement Program.
    - Factors that appear to increase a citizen's willingness to contribute include: trust in science (based on responses to a series of 7 questions), and participation in coastal recreation.
    - Residents who believe that state residents are responsible for helping to solve coastal water quality problems are more likely to state a willingness to contribute. Further, residents who believe that changes to their personal behavior, or changes to their neighbors' behavior, impact water quality are more likely to state a willingness to contribute.
    - Factors that decrease willingness to contribute include: higher monthly fee, a higher evaluation of home- state water quality, longer length of residency.
- Maine residents and New Hampshire residents evaluate water quality differently—New Hampshire residents provide higher rankings for water quality in all other states and provinces evaluated, where Mainers consistently assign lower coastal water quality rankings across the board.
- Public health information seeking and reporting behavior may be an issue for citizens: although beach safety information is publicly available, 80.9 percent of respondents do not ever seek information on beach safety, and 69.2 percent of respondents do not ever seek information on shellfish safety; further, of respondents who reported feeling ill after eating shellfish, 80 percent did *not* report their illness.
- Citizens rank pollution and runoff issues highest in terms of perceived negative impact on water quality. Examples of these issues are: industrial pollution; fertilizers, chemicals, pesticides; polluted river/stream runoff; and failing septic systems.
- Though most respondents believe that state residents are responsible for helping to solve coastal problems (78.9%), fewer believe it is their *personal* responsibility to help solve coastal problems (65.2%).

INTRODUCTION

The connection between coastal water quality and public health is well-documented. As increases in tourism bring more visitors to the Maine and New Hampshire coastlines, water quality becomes an increasingly serious public health issue—more opportunities for exposure to water or potential for consumption of unsafe seafood is worrisome for coastal managers. The Maine and New Hampshire Coastal Resident survey is a part of a larger research effort through the New England Sustainability Consortium (NEST) Beaches and Shellfish Project[1] to address possible information gaps, support the information needs of coastal managers, and provide scientific information to inform policy assessment and design. The survey focused on valuation of coastal water quality, decisions about budget allocation, as well as perceptions and behaviors of Maine and New Hampshire residents relating to water quality, including possible water quality myths.

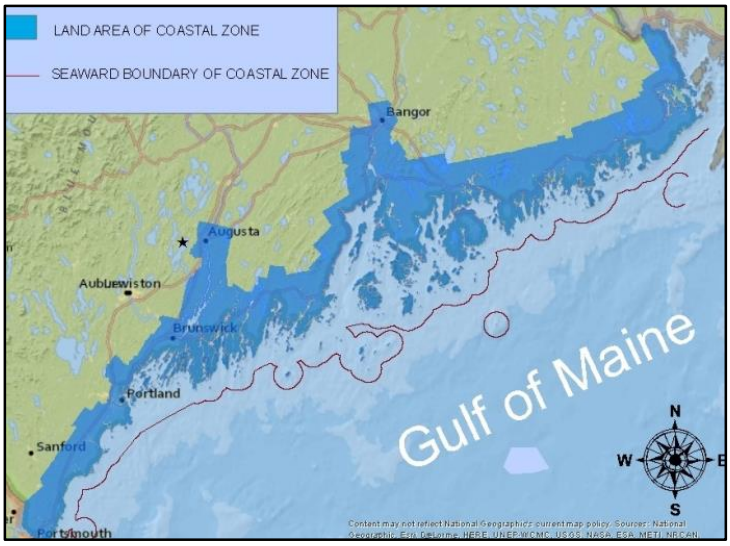
The goals of this survey were to:

- Identify resident priorities for coastal management, resident understanding of factors contributing to poor (and good) water quality, and resident evaluation of the consequences of impaired (and improved) waters
- Gauge resident acceptance of popular water quality myths
- Classify attitudes about local and state government agencies: trust in government, effectiveness of government to address coastal issues, and responsibility toward water quality
- Assess resident willingness to pay to help improve coastal water quality, as well as budget allocation decisions
- Capture how personal characteristics of the individual—including climate change beliefs, trust in science, and risky behaviors—may influence knowledge about coastal water quality
- Provide insight and context to help improve alignment of management practices with resident perspectives for improved policy effectiveness

[1] The New England Sustainability Consortium (NEST) Safe Beaches and Shellfish Project is a collaboration between The University of Maine, University of New Hampshire, University of Southern Maine, University of New England, Plymouth State, and College of the Atlantic, funded by NSF-EPSCoR. You can learn more about NEST here: http://nest.maine.edu/, and here: http://www.newenglandsustainabilityconsortium.org/safe-beaches-shellfish.

SURVEY ADMINISTRATION AND METHODS

The NEST Maine and New Hampshire Coastal Resident Survey was administered in August 2015. The sample area for the survey was New Hampshire and Maine's shared coast. Towns were selected for inclusion in the survey if they were defined as part of their respective state's *coastal zone*; this yielded 146 coastal towns in Maine[2] and 37 coastal towns in New Hampshire[3]. Participants received a letter by U.S. mail notifying them of their selection into the survey sample and inviting their participation. Participants received a survey booklet through U.S. mail shortly thereafter.



There were two versions of the mixed-mode survey: one with a focus on beach use and the other focused on seafood consumption. Our sample of 2666 Maine residents were split, half (n=1333) received a ME Beaches version of the survey, the other half (n=1333) received the ME Shellfish version of the survey[4]. Correspondingly, of the 1334 New Hampshire residents in the pilot sample, half (n=667) received a NH Beaches version of the survey, the other half (n=667) received the NH Shellfish version of the survey[5]. A total of 4000 invitations were mailed to Maine and New Hampshire residents living on the coast, and we received 1766 useable survey responses[6] (427 undeliverable) for a 32.9 percent response rate. We oversampled residents in the Frenchman Bay (N=42) and Wells (N=68) regions of ME, as well as the Great Bay (N=40) region in NH. The NEST Safe Beaches and Shellfish Project designated the aforementioned regions as reference sites for biophysical research. The oversample will allow for analysis of spatial differences between residents in reference regions, or between residents in individual regions and residents living along the rest of the coast.

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[2] Maine Coastal Zone Program Map: http://www.maine.gov/dacf/mcp/about/coastal_zone_map.htm
[3] New Hampshire Coastal Zone Program Map: http://des.nh.gov/organization/divisions/water/wmb/coastal/documents/nh_coastal_zone_map.pdf
[4] Maine residents were oversampled in the NEST project reference sites of Frenchman Bay and Wells.
[5] New Hampshire residents were oversampled in the NEST project reference site of Great Bay.
[6] The number of respondents from Maine is 823 across the beach and seafood focused versions, and 353 from New Hampshire.

A) WHAT INFORMATION DID WE CAPTURE?

The mail survey instrument used a tailored design: the survey booklets were distributed through the mail along with $1.00 incentive for residents (Dillman, Smyth, and Christian, 2014). The design of the survey was informed by a Pilot Survey conducted exclusively online in 2015. After surveys were returned, we entered all data into Qualtrics online software to streamline data analysis through the use of data panels and mergefields. The survey consisted of five main sections:

Resident priorities for coastal management and water quality knowledge

- Ranking of coastal water quality
- Factors impacting water quality
- 'Myths' about water quality
- Benefits of good water quality
- Consequences from poor water quality

Beach use or shellfish consumption

- Beach activities/shellfish consumption habits
- Information seeking behavior
- Knowledge of advisories

Willingness to contribute to coastal water quality improvement

- Priorities in protecting coastal water quality
- Willingness to contribute to improvement program
- Preferences for how program funds are distributed
- Preferences for program outcomes

Personal characteristics and risk behaviors, belief in climate change, trust in scientists

- Risky behaviors
- Climate change beliefs
- Trust in science
- Perceived responsibility for coastal water quality (and effectiveness)

Demographics

- Standard demographics including years lived in home state
- Participation in coastal activities within the last year

B) WHO PARTICIPATED IN THE STUDY?

We begin with demographics in order to provide a more detailed description of our survey participants. The average age of our respondents was approximately 59, and more males than females answered the survey (Table 1). Most respondents (98.2 %) answered that the address to which the survey was mailed is that of their primary residence. Respondents had lived at the residence for an average of nearly 17 years, and in their home state for an average of nearly 38 years. Thus, many of our results are from the perspective of long time, year-round residents in both Maine and New Hampshire.

Table 1. Average age and gender percentage comparison: survey participants, sample towns, and statewide

	Average Age			Percent Male Respondents		
	Coastwide Mail Survey	Sampled Towns*	Statewide	Coastwide Mail Survey	Sampled Towns[a]	Statewide
Maine	59.6	48.1	43.2	57.8	52.6	49.0
New Hampshire	57.1	44.3	41.5	57.5	51.6	49.4

Statewide and town data are from the 2010 U.S. Census. [a]Sampled town data is weighted.

A majority of survey respondents (81.4%) reported that they had some college education or higher—this includes those with 1-3 years of college (or an Associate's degree), college graduates, and postgraduates. Employment status differed between the two states. There were significantly more full-time employed residents in New Hampshire than in Maine ($t=-3.45$, $p<0.001$). Maine had a significantly higher number of self-employed residents than New Hampshire ($t=2.27$, $p<0.05$). There was no statistical difference between Maine and New Hampshire in terms of the number of part-time, homemaker, retired, or unemployed residents in each (Table 2). The average income for New Hampshire respondents was much higher at $100,053 per year, compared to $84,759 per year in Maine.

Table 2. Percentage employment status by state

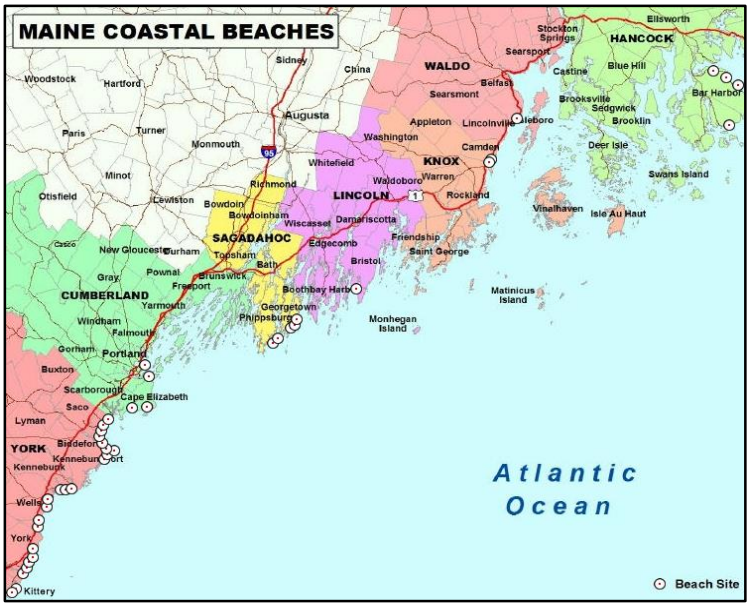
	Maine	New Hampshire
	Coastwide Mail Survey	Coastwide Mail Survey
Student	0.9	0.6
Unemployed	1.0	1.5
Homemaker	2.1	1.2
Employed at Home	4.5	1.7
Part-time	9..06	7.5
Retired (not working)	38.2	32.8
Full-time	44.2	54.8
N	795	345

C) HOW DID WE ANALYZE OUR DATA?

We analyzed the survey response data with SAS 9.4 (**SAS** Institute Inc, 2013) for analysis. Our inferential statistics include chi-square tests of distribution differences, t-tests and analysis of variance (hereafter ANOVA). The age and gender comparison statistics using 2010 U.S. Census data[7] were calculated in Microsoft Excel. The coastal resident survey was launched in August 2015 with survey responses being received into December.

STUDY FINDINGS

A) COASTAL WATER QUALITY



Map 1. Maine Coastal Beaches, source: http://www.mainecoastdata.org/public/

Why is water quality important?
As residents of Maine and New Hampshire's coastal zone, our respondents have a unique perspective about water quality. For our respondents, the most important aspects of the coast are: 1) Clean ocean, estuary, and river waters (96.8%), 2) Beautiful scenery (89.1%), and 3) Public access to coastal resources (85.5%).

Respondents were asked to assign rankings for different priorities for coastal managers; they were offered a scale of 1 ("should not be done") to 7 ("top priority"), where they were allowed to select more than one option as a top priority. Reducing pollution entering coastal and ocean environments was assigned top priority by the majority of respondents (70.6 %), while 60.6 percent of respondents assigned top priority to "protection or enhancement of coastal water quality" (Figure 1).

Respondents perceived that the major detractors from coastal water quality were pollution and chemicals. Industrial pollution ranked highest in terms of perceived negative impact, while fertilizers, pesticides, and other chemicals were a close second (Figure 2). The "extremely important" (7/7 on the Likert scale) outcomes associated with poor coastal water quality were environmental or public health-related" (Figure 3).

[7] An overview of the Maine 2010 Census is available in PDF format: http://www.census.gov/prod/cen2010/cph-2-21.pdf. Likewise, the New Hampshire 2010 Census overview is available in PDF format: https://www.census.gov/prod/cen2010/cph-2-31.pdf.

Figure 1. Citizen priorities for coastal managers, ranked by urgency (1=Should not be done, 7=Top priority); respondents were allowed to select more than one action as "top priority"

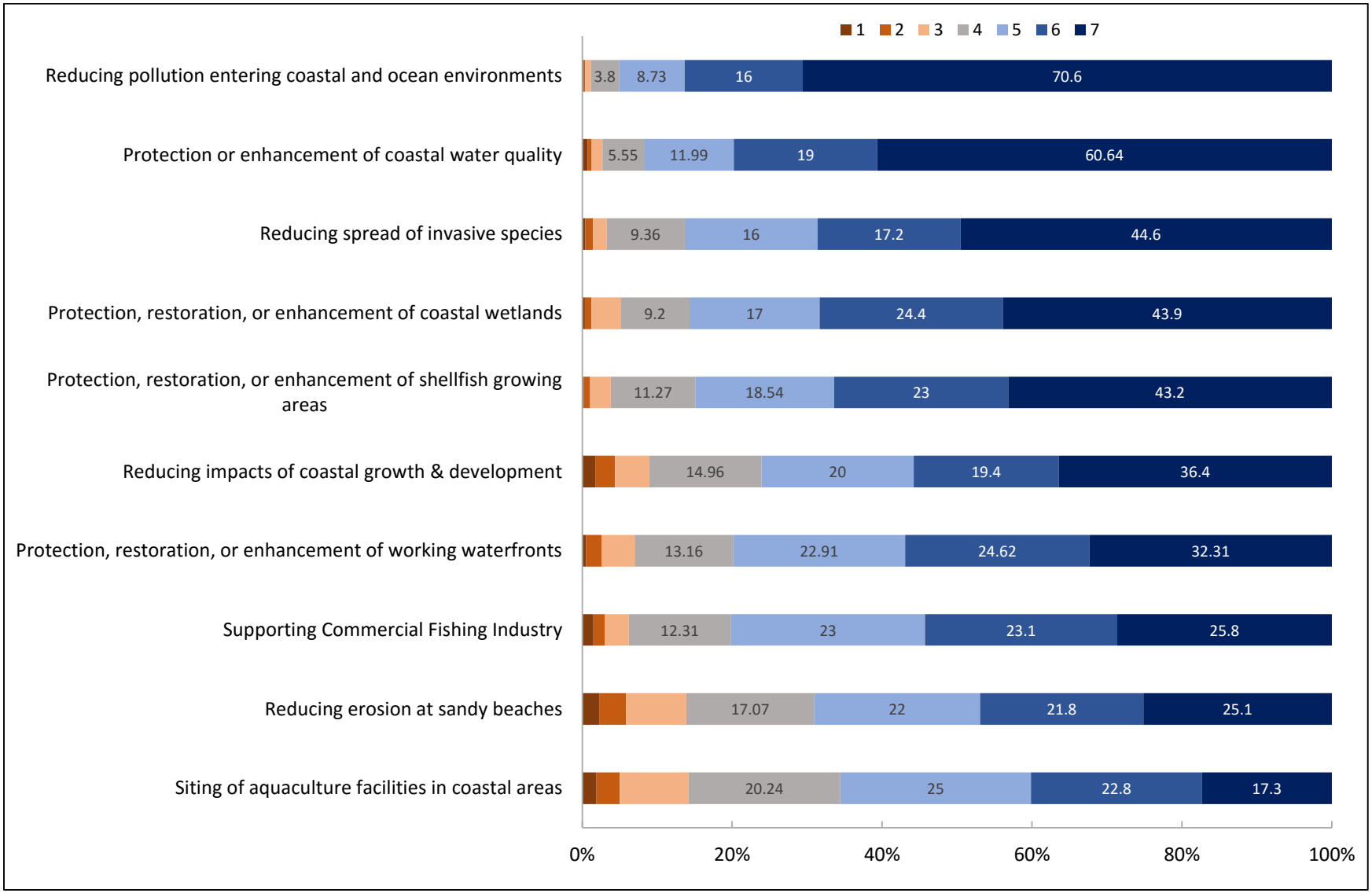


Figure 2. Resident perceptions about factors negatively impacting water quality (1=No negative impact, 4=Somewhat negative, 7=Very negative); respondents were allowed to choose "very negative" for more than one factor.

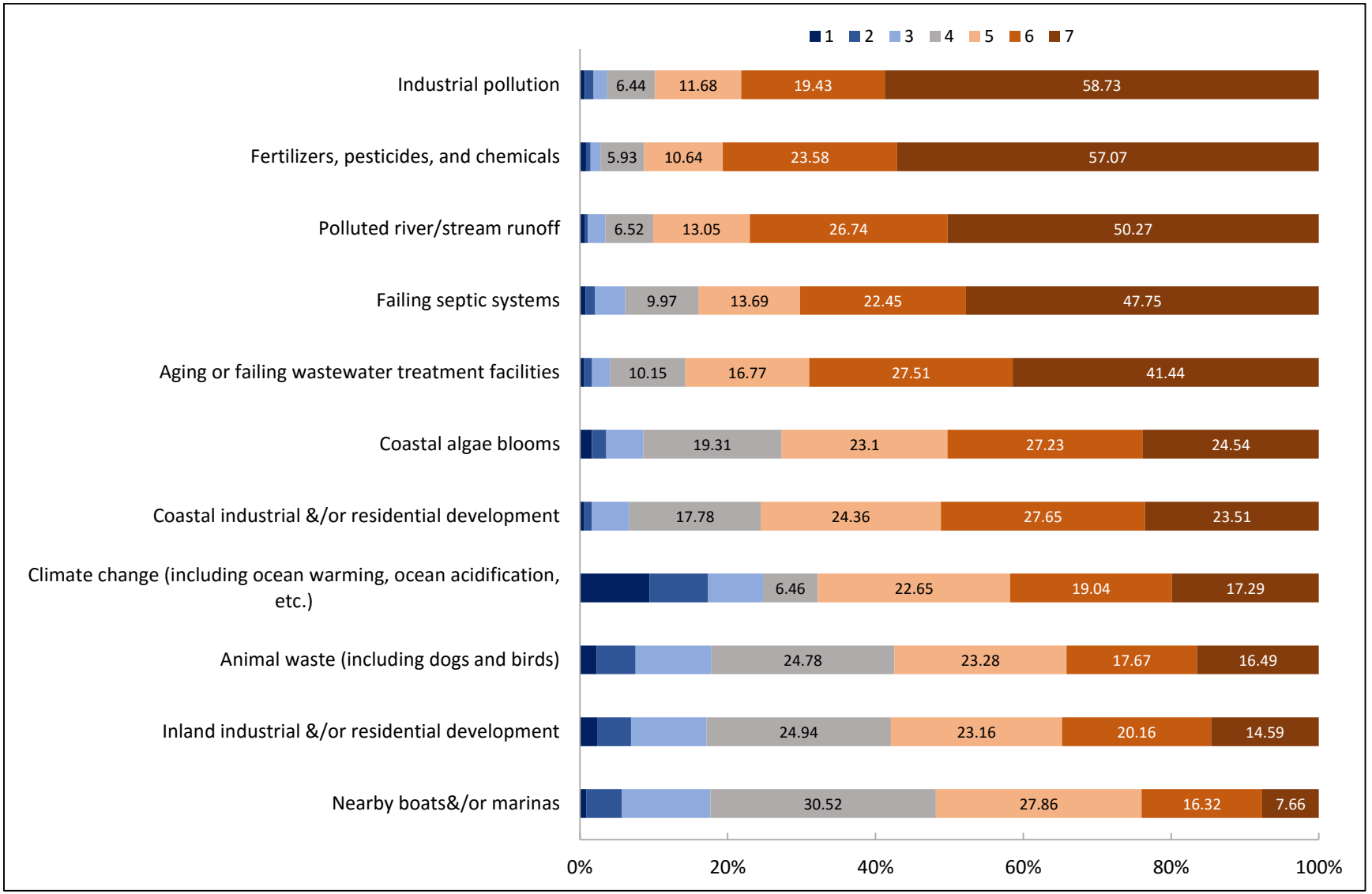


Figure 3. Respondent ratings of hypothetical Coastal Water Quality Program outcomes (1=not at all important, 4=somewhat important, 7=very important); respondents were allowed to pick more than one outcome as "very important"

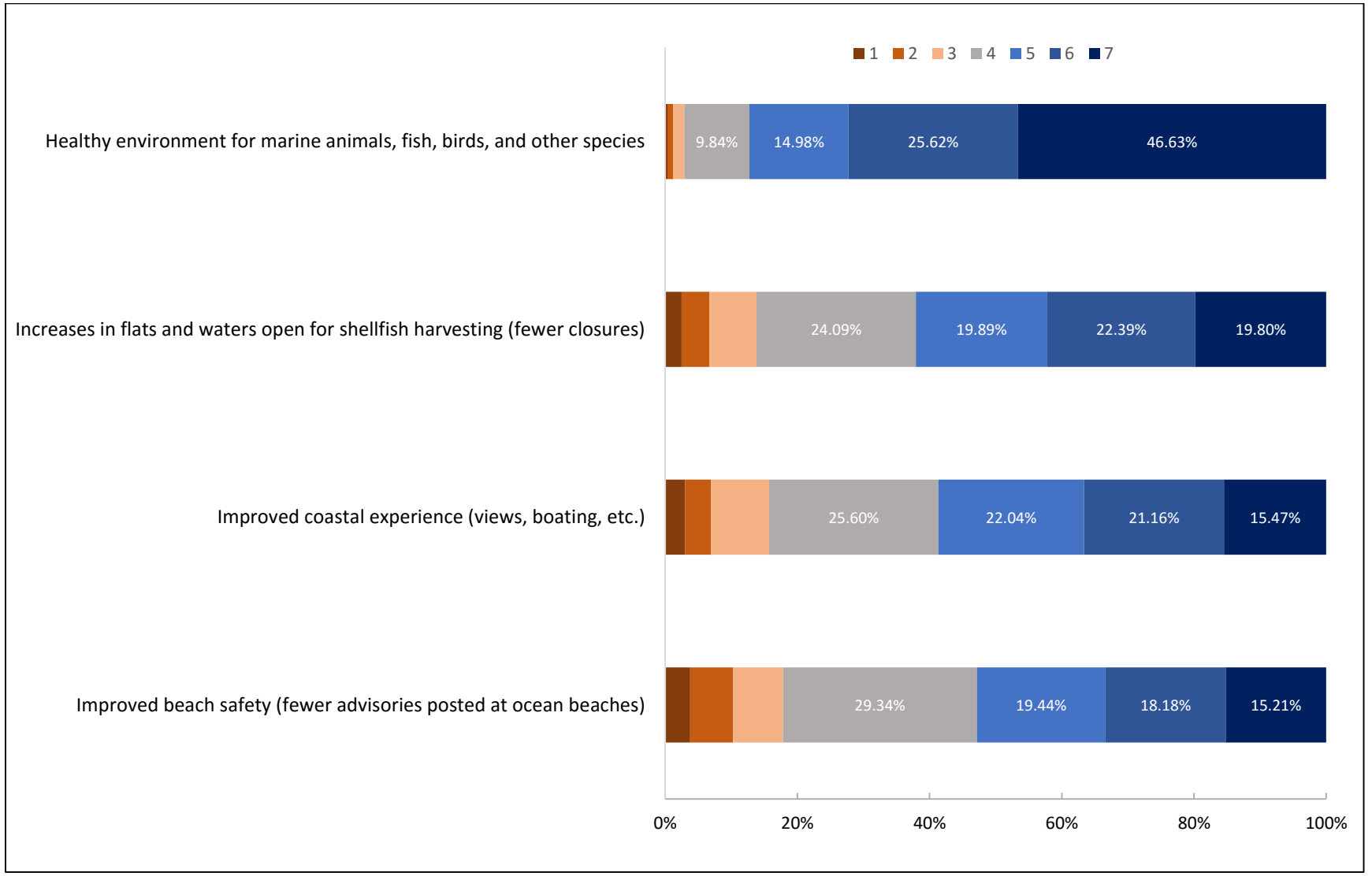
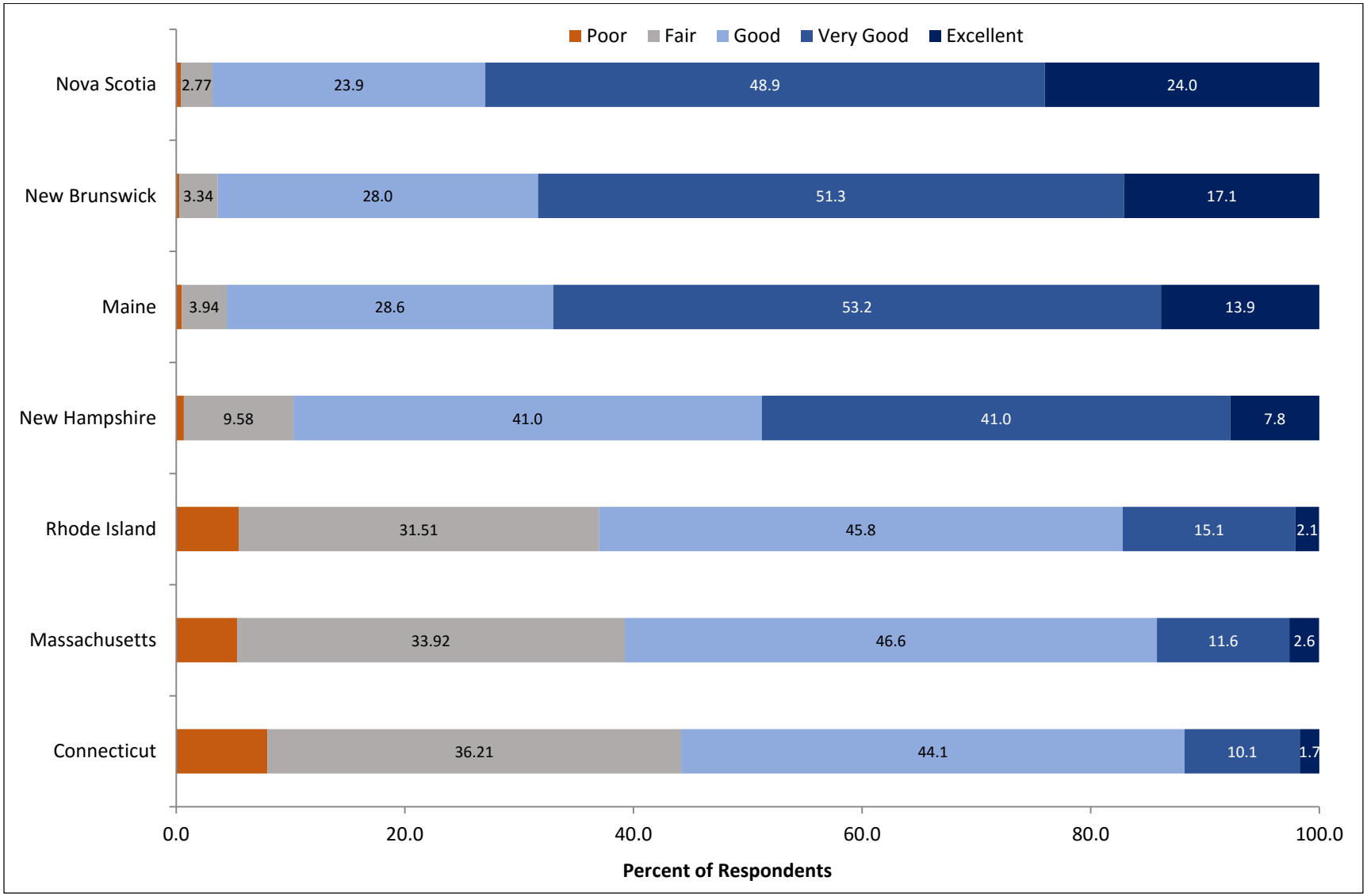


Figure 4. Respondents rate water quality in New England states and Canadian provinces; data labels provided for select ratings



How do residents rate their own water quality?

The 2014 Natural Resource Defense Council's (NRDC) report entitled, "Testing the Waters" ranks New Hampshire 2nd in the nation in terms of coastal water quality, while Maine is rated 27th (out of 30)—a noteworthy difference for neighboring states[8]. When asked to evaluate coastal water quality in four states (Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut) and two provinces (New Brunswick and Nova Scotia) respondents ranked Nova Scotia as having the best water quality (mean=3.93 out of 5) with New Brunswick ranked as second (mean=3.82, Figure 4). Maine and New Hampshire citizens evaluated water quality differently; New Hampshire respondents consistently ranked all regions higher than Maine respondents, including Maine and New Hampshire ($t \leq -2.80$, $p<0.01$ for all states).

Who is responsible for coastal water quality? Does how we talk about it matter?

Resident perceptions about who should be responsible for the management and protection of coastal water quality as a public resource may vary, which may impact individual level and policy support decisions. We investigate individuals' sense of responsibility for coastal waters, whether they believe other individuals should be responsible, and finally whether they believe state or local entities should be responsible for water quality. Approximately 77 percent of respondents agree that coastal water quality protection is the responsibility of local government (Figure 5). Interestingly, state of residence matters when thinking about local responsibility—New Hampshire residents are more likely than Maine residents to agree with the statement, "Local government is responsible for protecting coastal water quality" ($t=-2.14$, $p<0.05$). Only around 36 percent of respondents agree that local government is *effective* in protecting water quality. There was no significant difference between Maine and New Hampshire residents when asked about the effectiveness of local government in water quality protection.

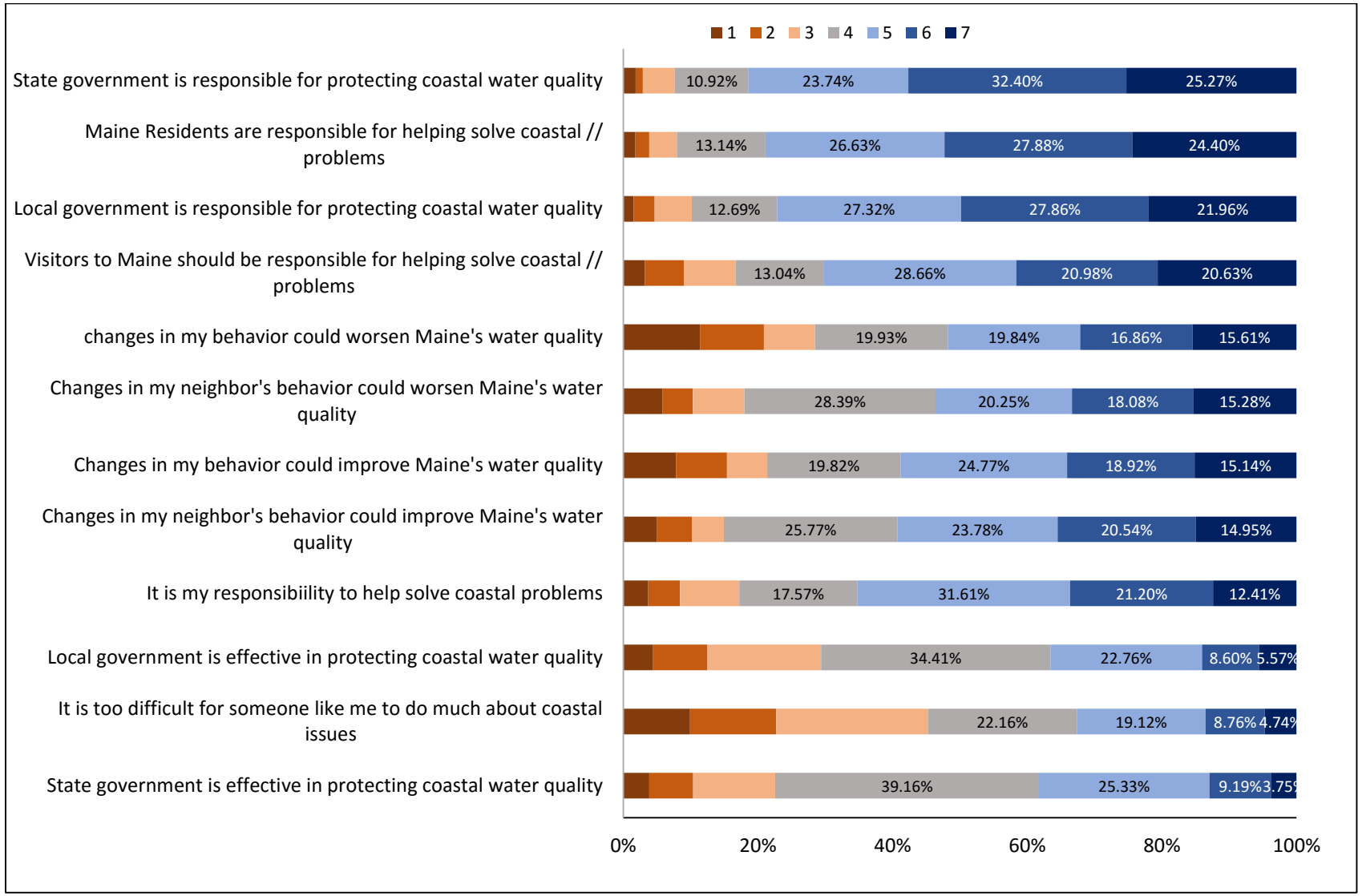
The majority of respondents from both Maine and New Hampshire (78.9%) believe that residents are responsible for protecting coastal water quality (Figure 5). When asked about personal actions residents take in their house or yard that worsen their home state's coastal water quality, only 51.3 percent agreed that they could make changes in their personal actions which might worsen water quality. When asked about changes residents could make in their own everyday behavior that would help to improve the quality of their state's coastal water, 53.8 percent agreed that they could make changes to their behavior to improve coastal water quality. When asked about the possibility of their neighbors changing their behavior to improve coastal water quality, 59.3 percent of respondents agreed that their *neighbors* could make positive changes to improve water quality, while 53.6 percent agreed that changes to their neighbors behavior might worsen water quality.

We recognize that citizens from different states or regions may have differing concepts of what 'coastal water quality' is; we tested differing definitions of coastal water quality to determine how they impact citizen evaluation of water quality, and other behaviors. We asked questions about the different 'myths' related to water quality as a means to address concerns expressed by our coastal program collaborators from Maine Healthy Beaches. Most respondents (72.3%) believe that a large

[8] Maine's low rating may be due to the 19% of water samples which exceeded the national Beach Action Value (geometric average of *Enterococci* colonies per 100mL water). New Hampshire, on the other hand, had only 3% of water samples exceed the national Beach Action Value.

number of birds or other animals (including dogs) make water quality worse. A majority of respondents (64.9%) agreed that recent heavy rain makes water quality worse as well. Maine and New Hampshire resident responses were significantly different for “large number of swimmers” ($t=2.29$, $p<0.05$) and “recent heavy rain” ($t=-2.73$, $p<0.01$).

Figure 5. Percentage of respondents agreeing to statements about responsibility for water quality; respondents rated categories on a Likert scale from 1 (strongly disagree) to 7 (strongly agree).



STUDY FINDINGS
B) INFORMATION, WATER QUALITY and COASTAL ACTIVITIES

Do changes in water quality affect beach visitation?
Approximately 32 percent of respondents reported visiting a beach on the Gulf of Maine coast at least once a week during the summer. People come to the beach for different reasons. The highest reported beach activities were (in order of highest reporting frequency): walking, reading/relaxing, sightseeing, swimming, and eating at local restaurants. While information on water quality may be available, 81 percent of respondents said they do not ever seek information about the water quality at their state's coastal beaches. For the majority of respondents who *do* seek information about water quality at Maine and New Hampshire beaches, news and media (23%), as well as family and friends (about 14%), represent their source of information. Perceived information accessibility may be the issue: nearly 59 percent of respondents said they would like to see water quality information signs at beach access points, and 35 percent said they would like to find coastal information on a website. It is important to note that information is *currently provided through both of these options*. Over half of respondents (nearly 57%) report having heard of, or seen, a coastal beach advisory in their state, so the information is demonstrably accessible.

We suggest that the problem may not be with the availability of water safety information, but rather with the perception of risk: survey respondents believe that if they entered the water during a beach advisory, they were (on average) only about 50 percent likely to get sick—just like tossing a coin. This result is notably inconsistent with literature that connects immersion activities or full-body contact in contaminated waters, especially those resulting in ingestion, such as swimming or surfing, with contraction of a gastrointestinal illness (Colford *et al.*, 2007, Dorevitch *et al.*, 2012, Wade *et al*., 2010). The perception of risk aligns more closely with actual beachgoer experience: less than 2% of our Maine and New Hampshire residents reported themselves or a family member feeling sick after swimming at a Gulf of Maine beach during the summer.

Do water quality perceptions affect shellfish consumption?
A majority of Maine and New Hampshire respondents who received the survey focused on shellfish reported consuming seafood at least once a week (64%). Most respondents said they typically obtain their seafood from a grocery store (74%) or restaurant (72%). Only around 12 percent of respondents reported themselves or a family member feeling sick after eating shellfish. The majority of these illnesses were not reported: 80 percent of respondents who fell ill after eating shellfish said they did not report their illness. Though seafood-related illness was far more commonly reported than water-borne illness (12% and <2% reported illness, respectively), 69 percent of respondents said they did not ever seek information about the safety of eating seafood. This statistic is especially intriguing given the result that 85 percent of respondents had heard of, or seen, a shellfish area closure. Of those participants who do seek information about the safety of eating seafood, most report seeking information from news and media sources (28.5%) or their seafood wholesaler/retailer (16%), followed by family and friends (12.9%), followed by local harvesters (8.8%).

Interestingly, only a little more than half (52.8%) of respondents believed they were likely to get sick if they consumed shellfish from an area posted as closed.

STUDY FINDINGS
C) ECONOMIC VALUATION

What factors influence a person's willingness to contribute?
Economic valuation questions were included in the survey in order to assess citizens' support for water quality programs. The economic valuation questions utilized the contingent valuation (CV) method, where respondents were asked about their willingness to pay to help support a hypothetical coastal water quality program through an increase in monthly sewer/water/septic fees. Majority vote leads us to believe that citizens living on the Gulf of Maine coast would support a coastal water quality program: nearly 58 percent of Maine residents and 54 percent of New Hampshire residents surveyed were willing to contribute to a hypothetical Coastal Water Quality Program. There was no statistical difference between states in terms of willingness to contribute.

Fee is a statistically significant factor explaining willingness to contribute; participants who saw a lower dollar value for their sewer/water/septic fee increase were significantly more likely to contribute. For example, nearly 84 percent of those who saw the question posed with a fee increase of $2 per month in a sewer/water/septic bill were willing to contribute to a coastal water quality program (Figure 6). Those who saw a higher dollar value were significantly less likely to contribute ($t=11.71$, $p<0.0001$).

Individual responsibility plays a major role in coastal water quality program support. Residents who agreed with the statement, '[Maine or New Hampshire] residents are responsible for helping to solve coastal problems' were significantly more likely to say "yes" to supporting a coastal water quality program ($t=-8.71$, $p<0.0001$). Similarly, residents who agreed with the statement, 'I am responsible for helping to solve coastal problems' were significantly more likely to be willing to support a coastal program.$t=-8.80$, $p<0.0001$).

Sense of control and the impact of individuals on water quality also appear to play a substantial role in a resident's willingness to pay to support a hypothetical coastal water quality program. Respondents who agreed with the statement 'It is too difficult for someone like me to do much about coastal problems' were significantly more likely to say "no" to supporting a hypothetical coastal water quality program ($t=6.39$, $p<0.0001$). Respondents indicating that their everyday behavior has an impact on water quality were significantly more likely to be willing to contribute; this includes those who felt that changes to their personal behavior could improve water quality ($t=-8.94$, $p<0.0001$), and those who felt that changes to their personal behavior could worsen water quality ($t=-8.13$, $p<0.0001$). Likewise, respondents indicating that their neighbors' behaviors have an impact water quality were significantly more likely to be willing to support the Coastal Water Quality Program; this includes those who felt that changes to their neighbors' behavior could improve water quality ($t=-8.51$, $p<0.0001$), as well as those who felt that changes to their neighbors' behavior could worsen water quality ($t=-4.51$, $p<0.0001$). The connection residents make between the actions of individuals and coastal water quality appears to be an important determinant of program support.

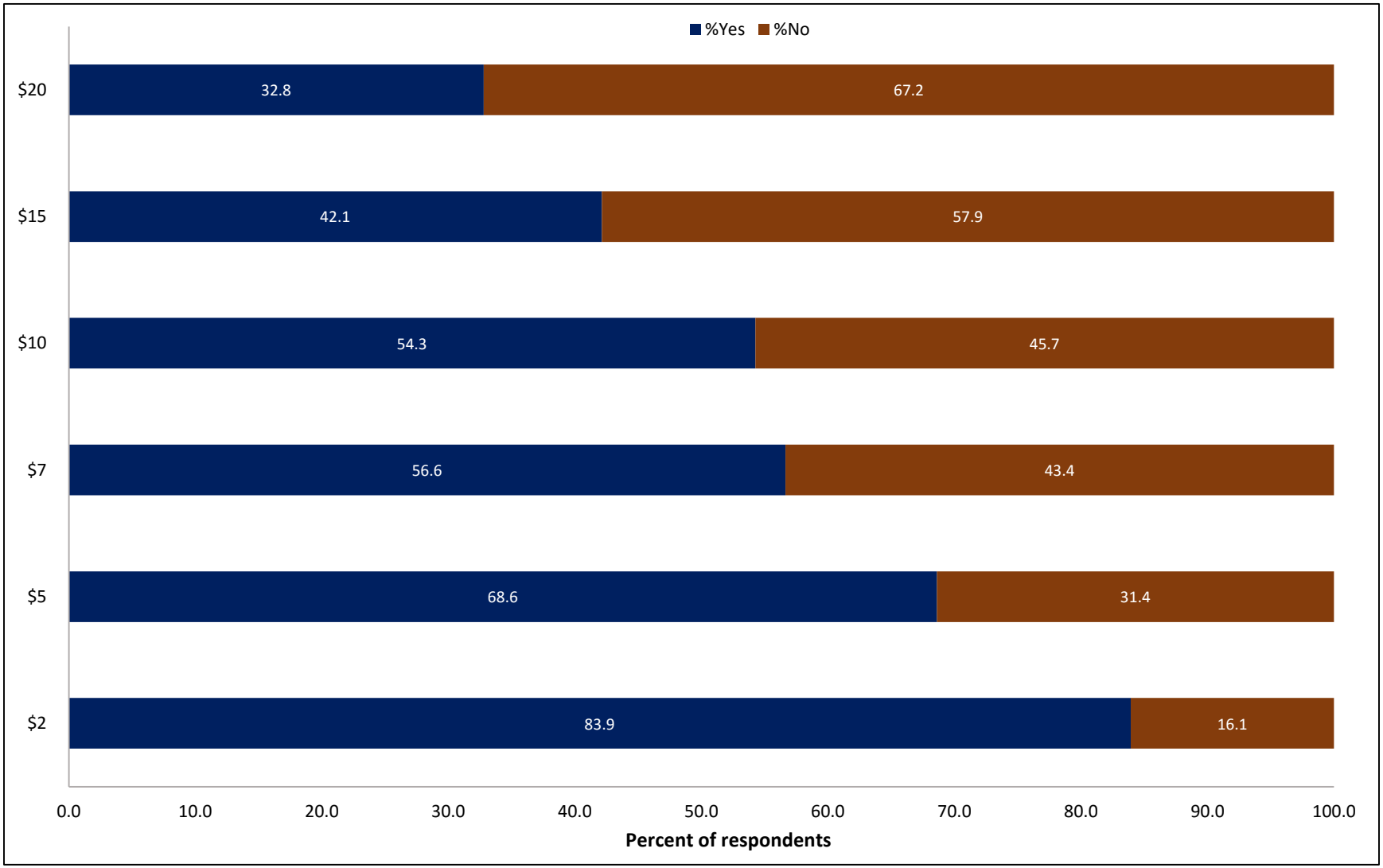
Where do residents prefer to allocate budget shares?
Respondents were asked to allocate a hypothetical Coastal Water Quality Program budget toward actions to improve, protect, or monitor water quality. Residents show awareness of how a Coastal

Water Quality Program should, “walk the walk”: Maine and New Hampshire residents allocate the largest budget shares to actions which mirror top citizen priorities for coastal managers (Figure 1). Recall that residents’ top priorities for coastal managers were “reducing pollution entering coastal and ocean environments” (70.6%) and “protection or enhancement of coastal water quality” (60.6%). On average, respondents dedicated the largest percentages (21.8%) of the hypothetical Coastal Water Quality Improvement Program budget to “improving wastewater treatment, sewer and stormwater runoff infrastructure” and “improving water quality monitoring to detect pollution sources” (15.3%).

What are residents’ preferred program outcomes?

The coastal water quality program outcome which received the highest rating by respondents was “healthy environment for marine animals, fish, birds, and other species” (87.2%), followed by “increases in flats and waters open for shellfish harvesting (fewer closures)” (62.1%). These outcomes reflect citizen concerns about environmental and public health.

Figure 6. Willingness to contribute to a coastal water quality program by fee amount; percentages represent the percentage of citizens responding yes or no to support at each dollar amount



DISCUSSION

How can we better communicate with the public about environmental and public health risk?
Given that very few respondents (12%) reported shellfish-related illness, and even fewer respondents (<2%) reported water contact-related illness we could infer that current coastal water quality monitoring programs in Maine and New Hampshire are doing a good job of keeping Gulf of Maine coastal waters safe for beachgoers and shellfish. Another possibility is that residents may not be tracing illness back to its cause—either through contact with contaminated water or consumption of unsafe shellfish. Thus, effective communication with residents about the public health risks associated with poor coastal water quality is still very important.

If 81 percent of respondents do not seek information about water quality before going to the beach, how are they making decisions about whether or not to enter the water? Their decisions may be based in experience. If less than 2 percent of respondents report water-contact related illness, they may assume their favorite beaches are always free from contamination. Beachgoers may also buy into popular water quality myths, such as: "water quality is better by the mouth of a river," and "water quality is better after heavy rain." Nearly half of respondents (44.8%) believe that a large number of swimmers has no impact whatsoever on water quality. Likewise, many respondents (42.4%) believe that rivers and streams meeting the ocean have no impact on water quality. These myths may help us think about how to better communicate the risks associated with contaminated water.

How can we promote safety information about beach and shellfish growing area advisories or closures?
Many respondents reported that they check news/media for shellfish (28.5%) and beach safety information (23%), but the local newspapers do not publish a growing area status or beach advisory status report with the weather report or sports scores. 59 percent of respondents said they would like to see beach advisory information posted at beach access points, but many beaches already have beach information signs posted in those locations. This may indicate that they are not seeing the beach status signs already in place. We continue to partner with the Maine Healthy Beaches Program to explore different messaging and informational techniques in order to increase effectiveness of communication efforts.

35 percent of respondents say they would like to find beach safety information online, but many beach water quality programs already provide up-to-date safety and closure information on each of their websites. The EPA-funded Maine Healthy Beaches Program provides beach status updates online.[9,10] In New Hampshire, the Department of Environmental Services oversees the Beach Inspection Program which provides advisory status information online.

Shellfish sanitation information is also available online. Maine Department of Marine Resources provides shellfish pollution area inventory information for emergency flood closures (during and after rain events) and conditional area closures on their website, along with their Shellfish Sanitation Program hotline contact information.[11] Similarly, the New Hampshire Department of Environmental Services provides shellfish closure information on their website via the New Hampshire Coastal Atlas.[12]

How might we encourage feelings of responsibility for environmental and public health?
Respondents' perceived responsibility toward coastal water quality is revealing. Recall that respondents who felt that there were personal behavioral changes they could make to improve the quality of coastal water were willing to contribute to the hypothetical Coastal Water Quality Improvement Program, while those that felt that it was too difficult for them to do much about coastal problems were significantly less likely to be willing to contribute. How can we support water quality education focusing on changes people can make in their own lives? How can we help folks realize that everyone can do something to help improve water quality?

Finally, where can we go from here?
All evidence points toward citizens' general understanding about the cause of water quality issues, and yet those issues persist. Water quality problems can be especially challenging for coastal managers because they vary from community to community—there is no silver bullet. Citizen understanding of water quality problems and ability to make an impact may be enhanced through education efforts making the explicit connection between beach monitoring, beach advisories, and risk for water-contact illness. Signage near public waterfront access about the shellfish safety hotline and the risks of eating contaminated shellfish may help prevent foodborne illness in recreational harvesters unfamiliar with safe harvesting practices.

[9] Maine Healthy Beaches beach status page: http://www.mainecoastdata.org/public/CurrentBeachStatus.aspx
[10] Maine Healthy Beaches fact sheet: http://www.mainehealthybeaches.org/science.html#tested
[11] Maine DMR shellfish pollution area inventory list:
http://www.maine.gov/dmr/rm/public_health/closures/closedarea.htm
[12] New Hampshire DES New Hampshire coastal atlas: http://xml2.des.state.nh.us/CoastalAtlas/Atlas.html

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