

Beachgoers of Maine

Who are they and what do they think about water quality

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Why do we care?

ME and NH context

- Inform policy and management
- Promote public health
- Contribute to communication of water quality of beaches



Ogunquit beach, Ogunquit
Photograph: Carl D. Walsh/Aurora Photos/Corbis

Health context

- (Hlavsa et al., 2011) (Dorevitch et al., 2012)
(Fleisher & Kay, 2006)

Disclosure context

- (Loewenstein et al., 2014) (Weil et al., 2006)



Hampton Beach, Hampton
Photograph: Gail Frederick/flickr

What did we do? Who is our sample?

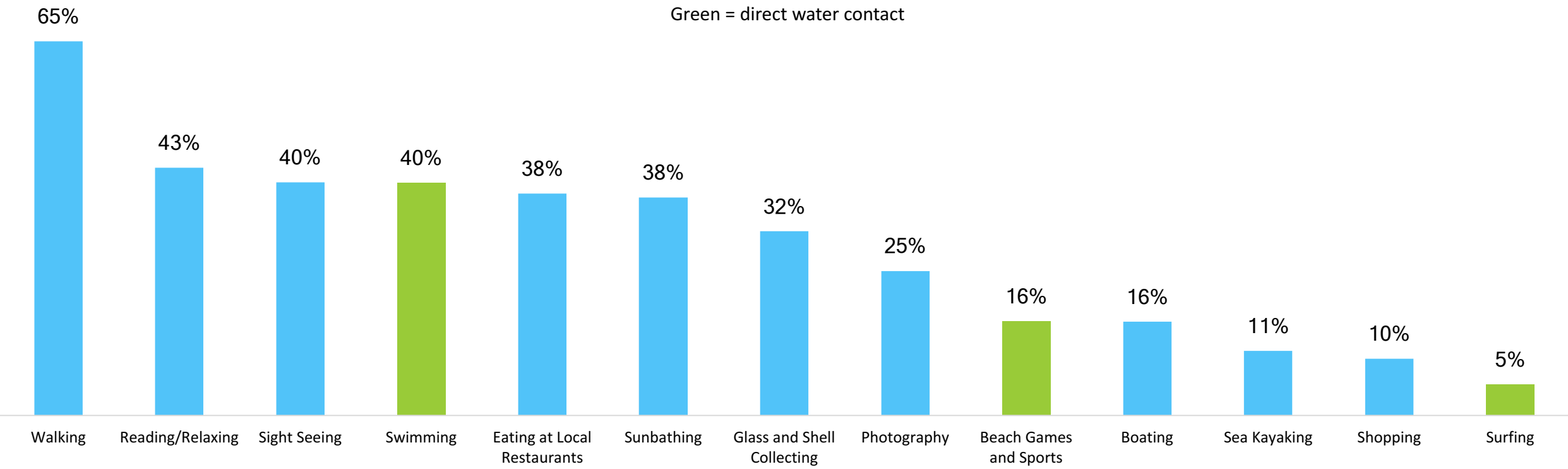
- NEST Safe Beaches and Shellfish Project (Fox et al., 2016)
 - 2015 mail survey to Maine and New Hampshire coastal residents
 - N=1,176 (33% response rate)
 - Beach version: N=598 (51% of total sample)
- Demographics
 - 58% male/42% female
 - Average age: 59
 - Average income in...
 - Maine: \$85k; New Hampshire: \$100k
 - Some college education or higher: 81%
 - Primary residence: 98%
 - Lived in...
 - Maine: 40.1 years; New Hampshire: 34.3
- NEST Beach Intercept Survey
 - 2014: NH Beaches, Wells-Ogunquit, Saco Bay (N=3,182)
 - 2015: York Beaches (N=875)
 - 2016: Portland Harbor Beaches (N=554)
 - Focus in this presentation on 2015-2016 samples
- Demographics
 - Portland:
 - 71%F/29%M
 - Median Age: 37
 - Some College +: 91.7%
 - Resident 76% Visitor: 24%
 - York:
 - 64%F/36%M
 - Median Age 50
 - Some College
 - Resident 43% Visitor 57

Coastal Resident Mail Survey Results

What activities does our sample typically do at the beach?

Activities typically done at the beach

Multiple choice
Green = direct water contact



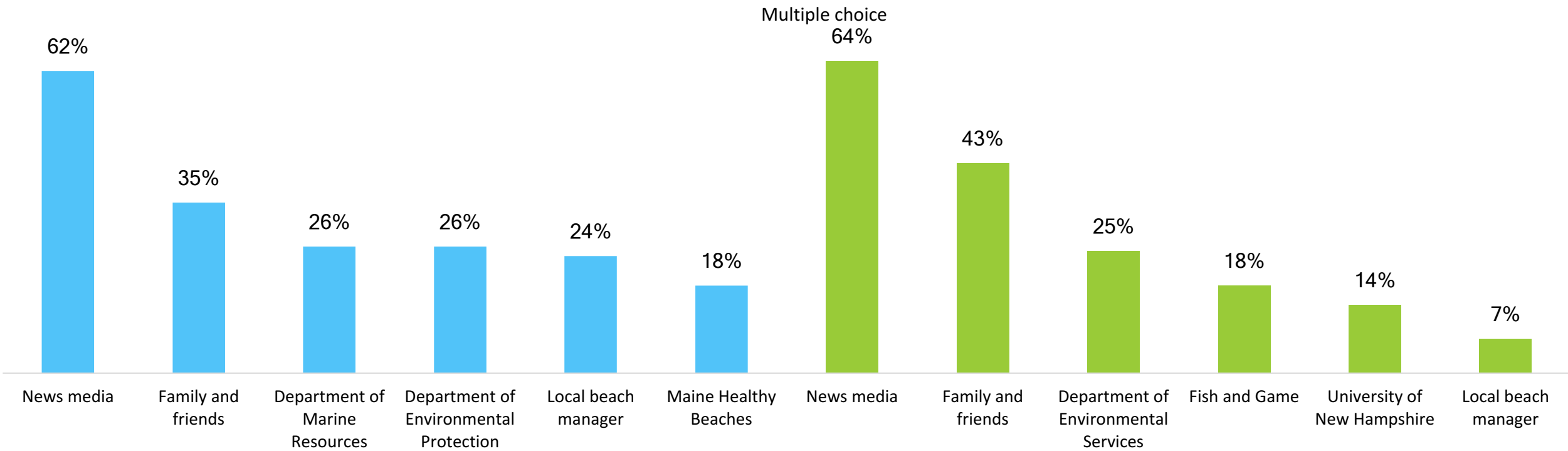
Awareness of disclosures does not affect perception of risk of a beach under an advisory.

- 26.3% of respondents have seen or heard of a coastal beach advisory
- Perception of health risk at a beach under advisory:
 - “If a beach has an advisory recommending that people not to enter the water, and a person like **yourself** enters the water, **in your opinion** how likely is it that this person gets sick?”
- Average: 44.9% chance of becoming ill
 - No significant difference in perception by:
 - State
 - Actively seeking safety information
 - Advisory awareness



News media, family, and friends are the primary sources of those who seek safety information.

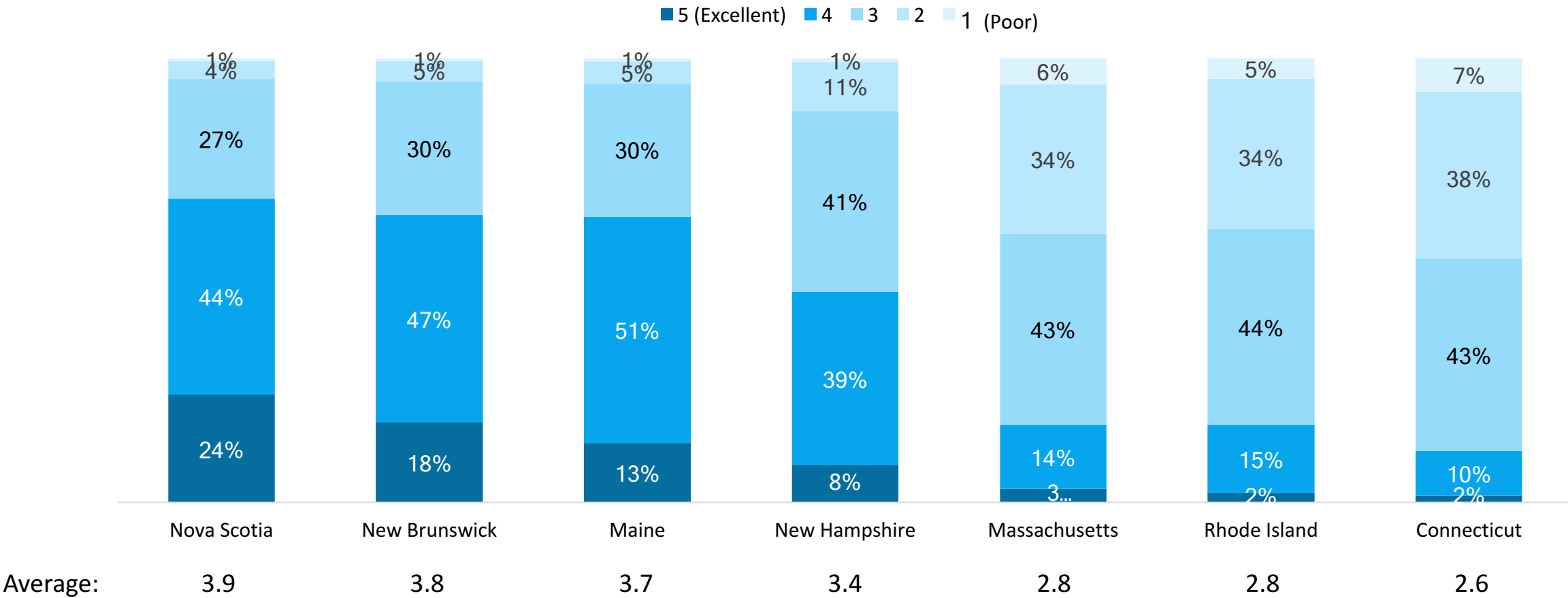
Sources among those who sought safety information about water quality (WQ) at coastal beaches



ME residents who seek safety info: 19.4%

NH residents who seek safety info: 18.4%

ME and NH have highest perceived WQ in coastal Northeastern US among total sample.

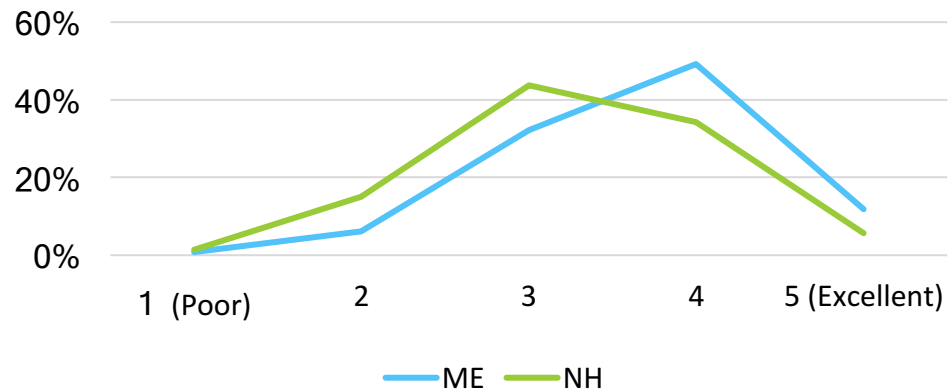


Perceptions of WQ differed by ME and NH respondents. NH rated average WQ perception higher for both states.

Test for difference in average rating and distribution by state

Distribution of ME WQ by state

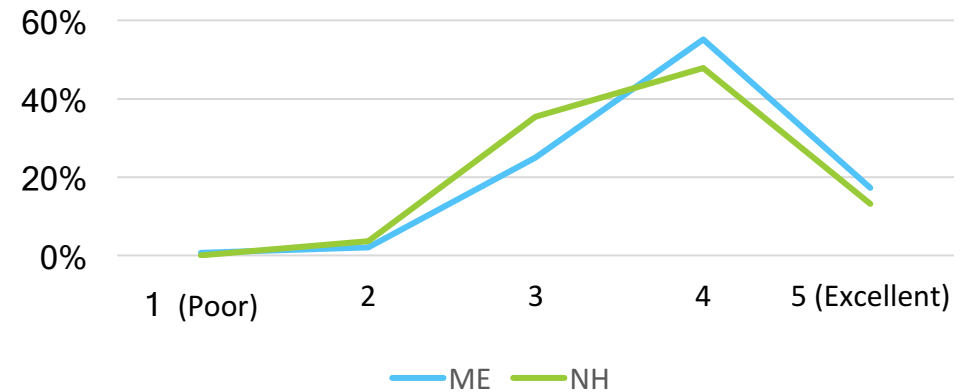
P=0.0611



Average ME WQ by state			
	ME	NH	
ME WQ	3.72	3.86	P=0.0052

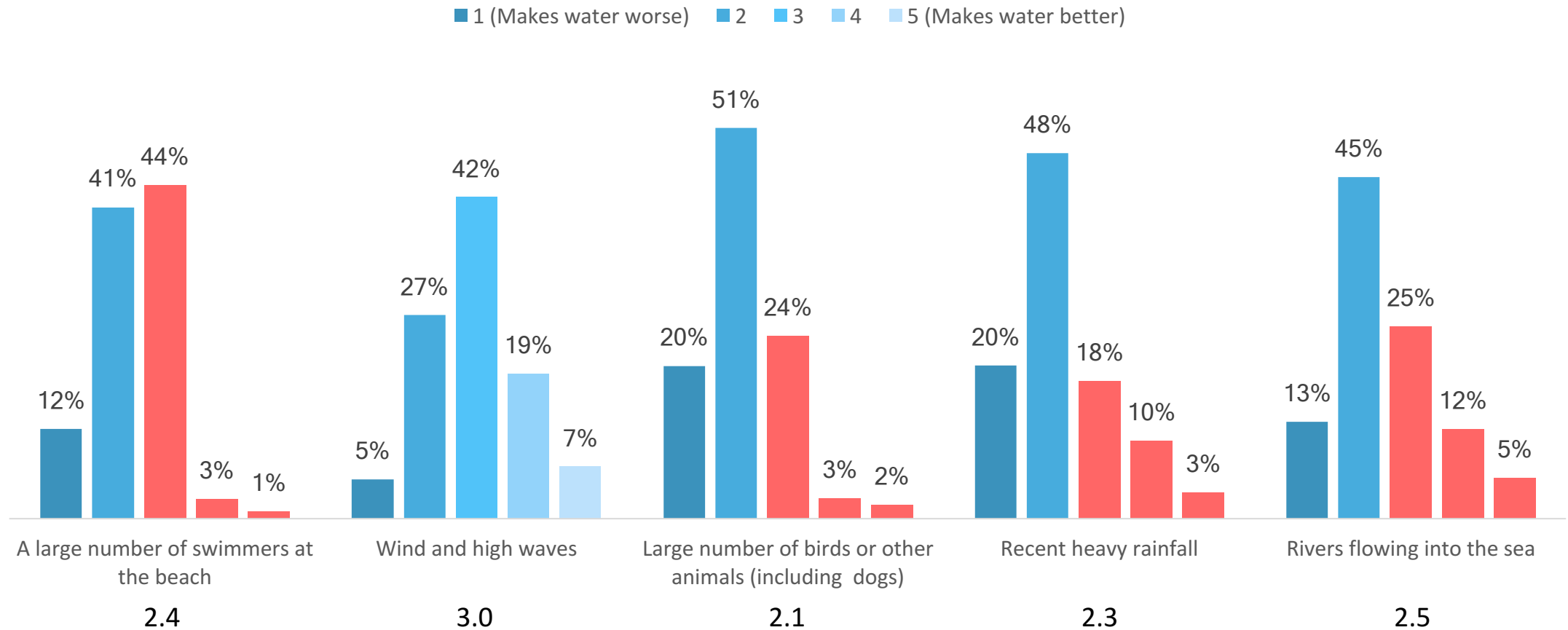
Distribution of NH WQ by state

P=0.0000



Average NH WQ by state			
	ME	NH	
NH WQ	3.33	3.68	P=0.0000

Between 29-48% of sample have incorrect perceptions of what changes WQ.

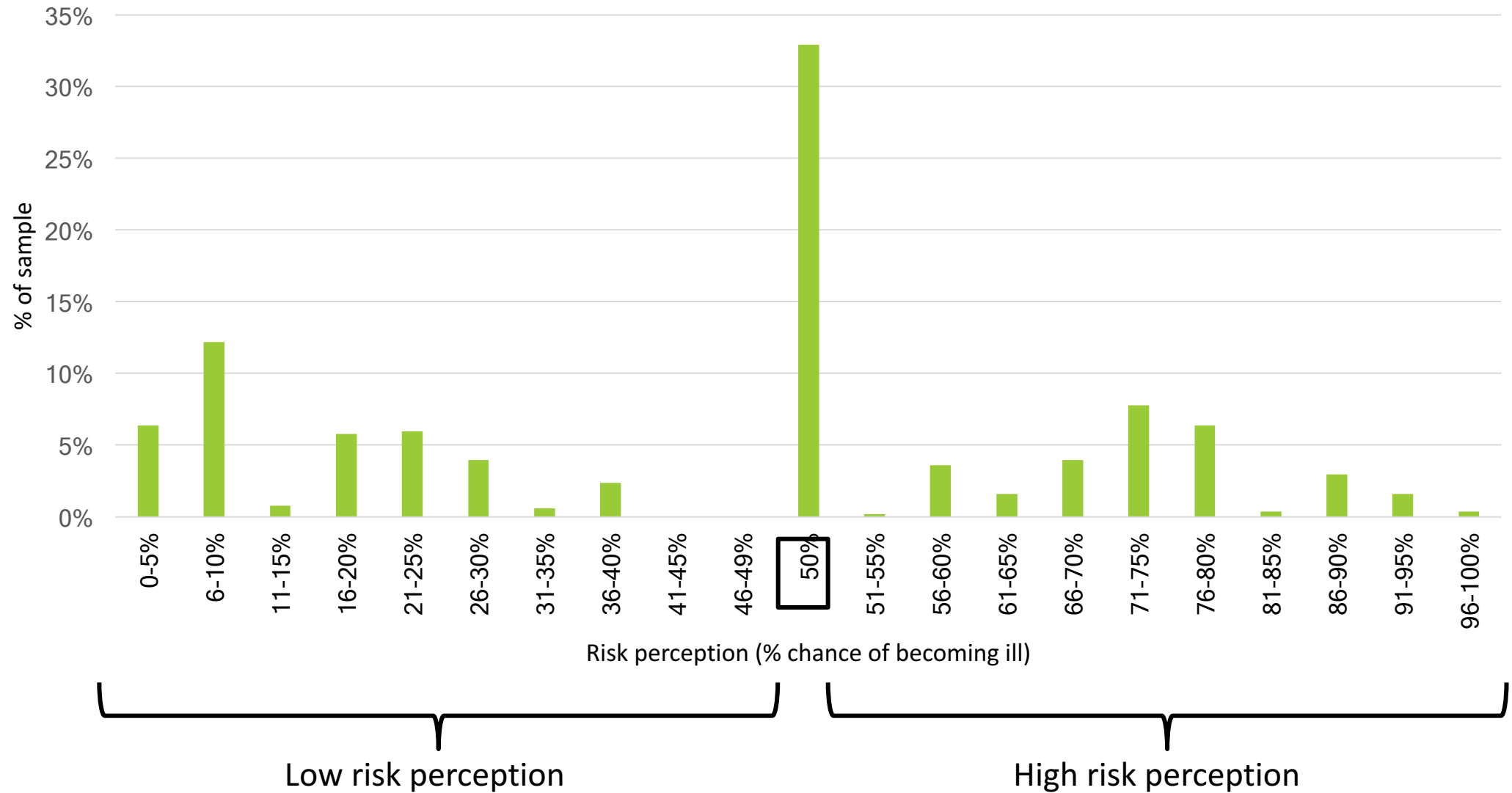


Back to risk perception...

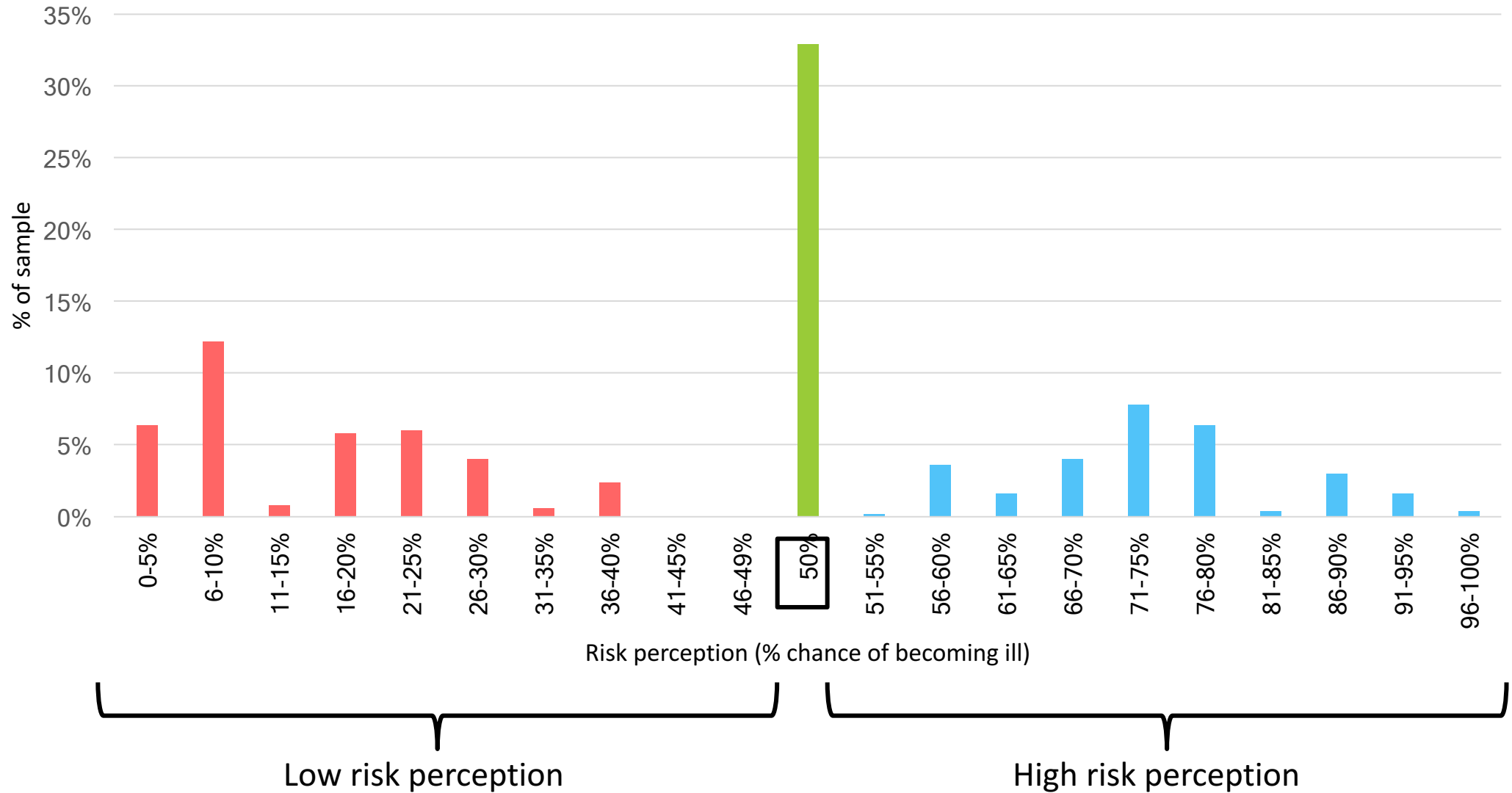
What influences it?

- Communication? Past experiences? Personal/public perceptions? Demographics?
- Let's take a look at the full distribution
 - Recall: average was 44.9%

Risk perception of beach under advisory



Risk perception of beach under advisory



Ordered logit

Dependent variable: Risk perception of beaches under advisory

N=314

	Risk perception	Low	Uncertain	High
Communication	Seeking information about water quality	+	-	-
	Scientists provide reliable information	+	-	-
Past experiences	Coastal beach advisory awareness	+	-	-
	Past sickness after swimming	+	-	-
Personal perceptions	Risk aversion	-***	+**	+***
	Home state water quality perception	+	-	-
Public perceptions	Issue Public health = 1; Marine environment = 0	+	-	-
	Gov't responsible	+	-	-
Demographics	Male	+**	-*	-**
	Education	+	-	-
	Income	+	-	-
	Age	+	-	-
	Age ²	-	+	+

Significance levels

* 10%, ** 5%, *** 1%

Portland and York Intercept Survey Results

Basic questions

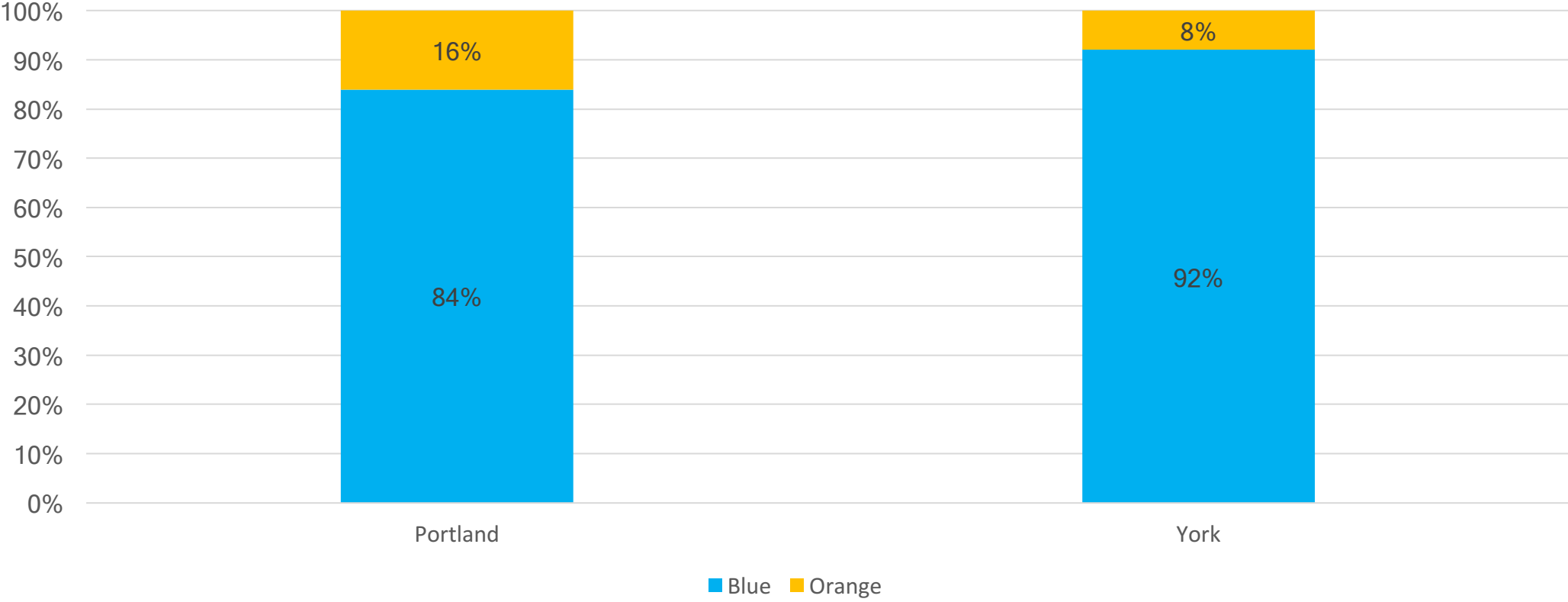
1. What factors are associated with people noticing and responding to water quality warnings at the each beach?

- Signs
- Flags

- Reported Behavior
- Water contact
- Visitor Characteristics
- Beach Characteristics

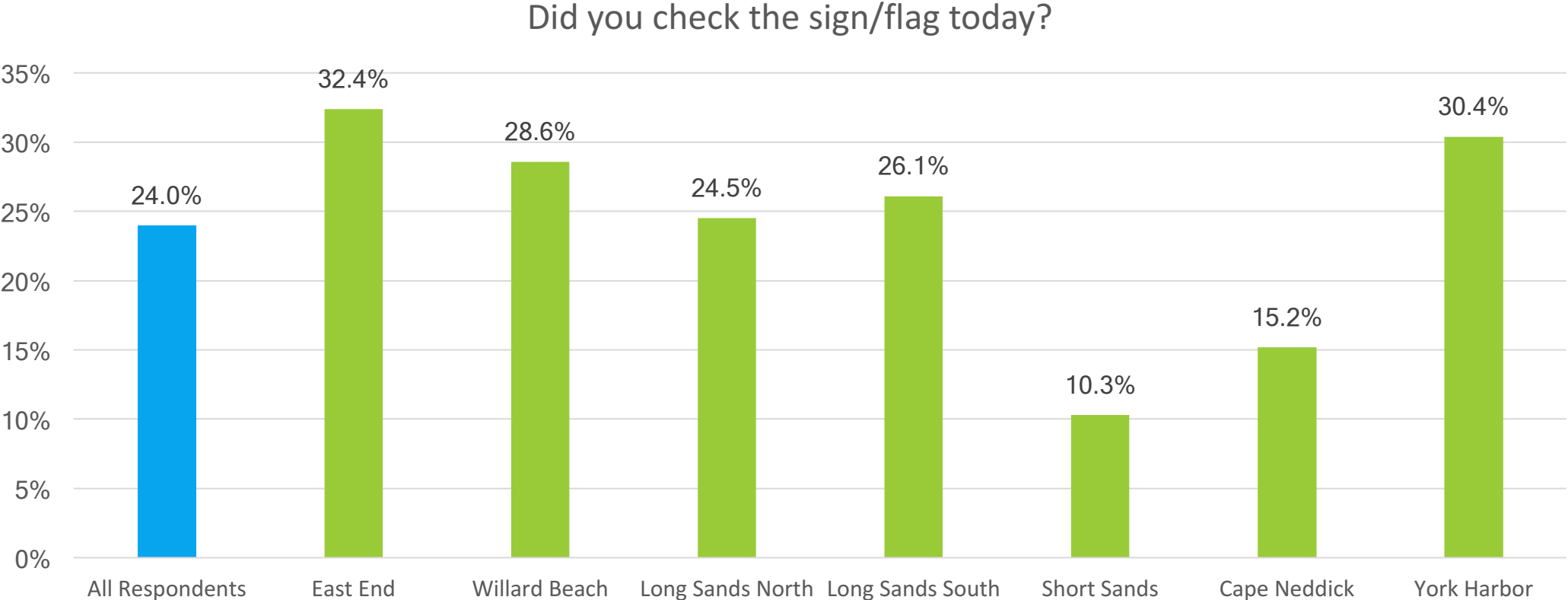
2. What kinds of information strategies might improve awareness of water quality issues?

Water quality at time of interview was good overall but better at York beaches.



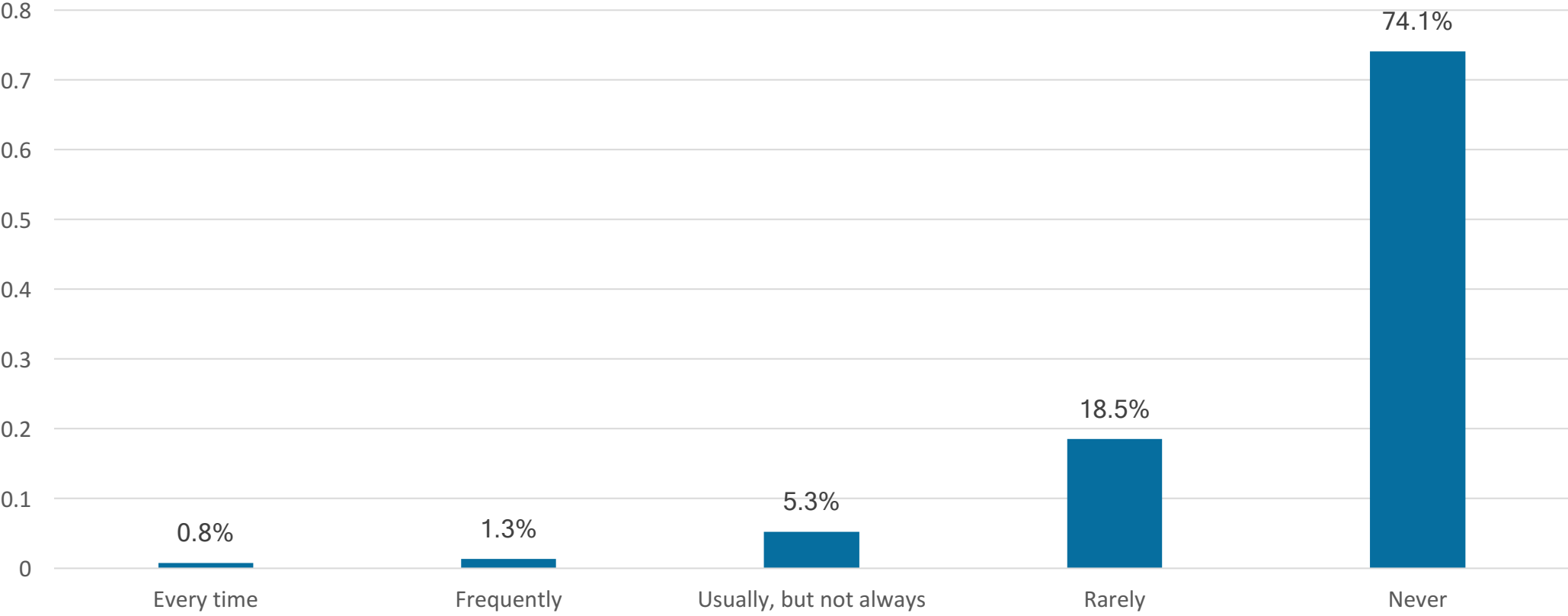
$P < .001$

Only a quarter of respondents check on-beach info, but more urban beaches are a little more likely to be checked

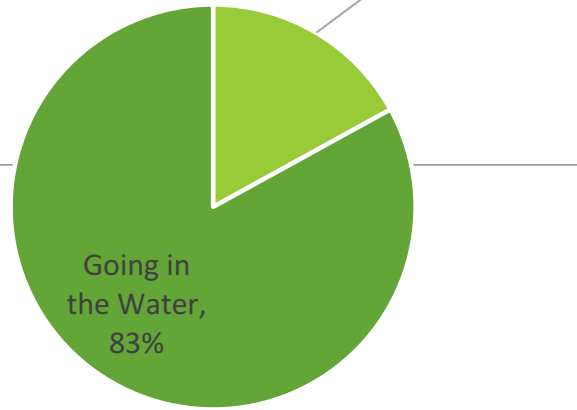


P=<.001

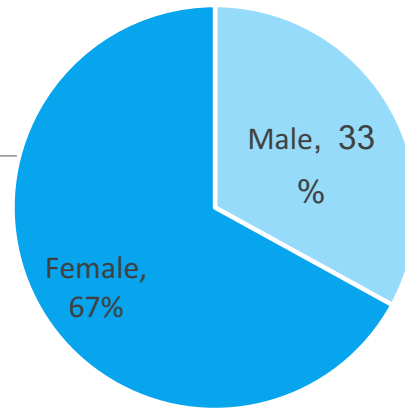
When you go to the beach do you check the on-beach information about water quality?



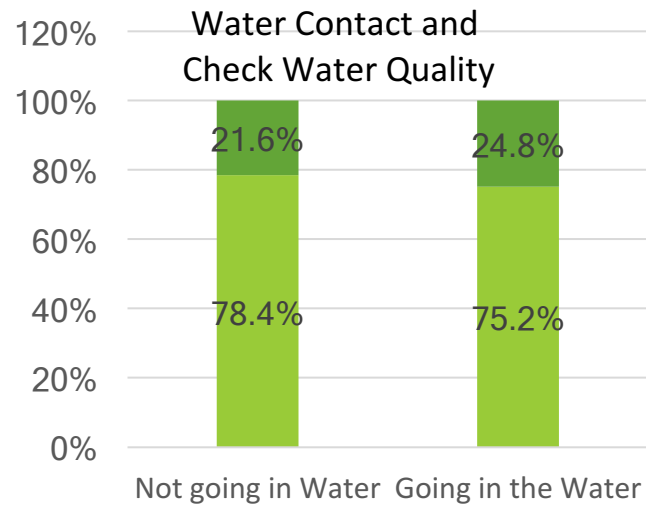
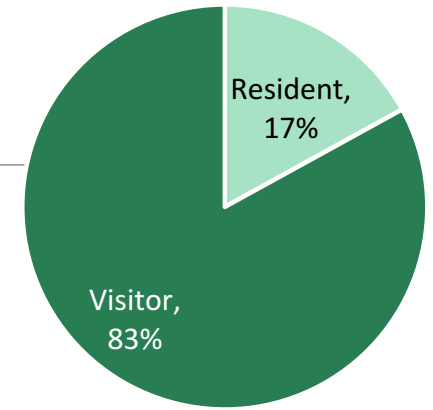
Water contact today?



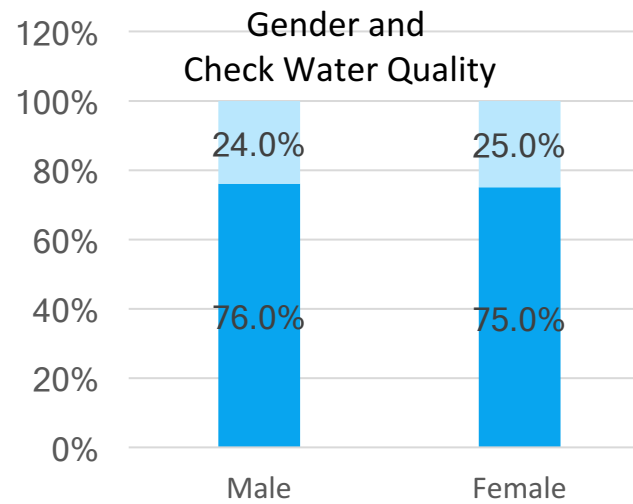
Gender of Respondent



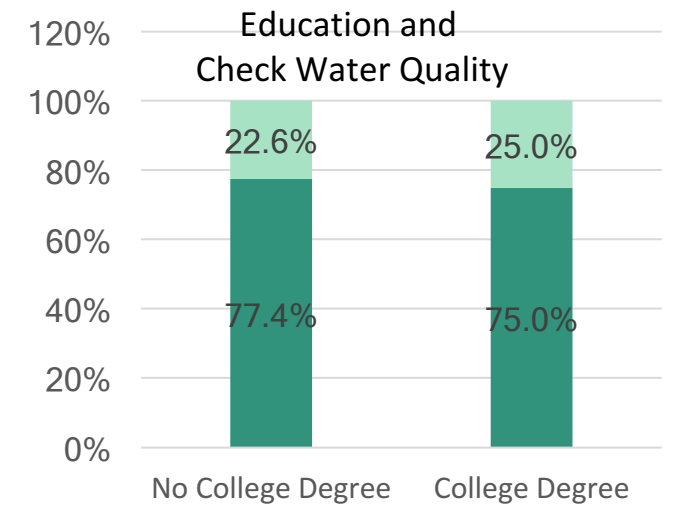
Education Level



Checked WQ-NO Checked WQ-Yes
P=.295



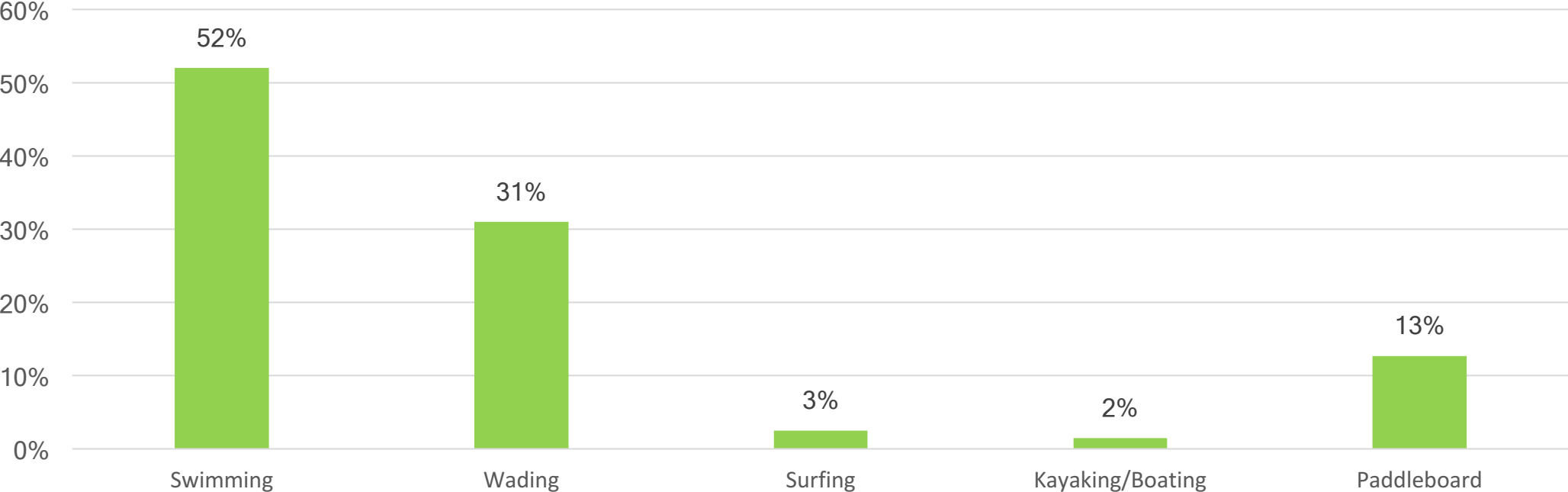
Checked WQ-NO Checked WQ-Yes
P=.823



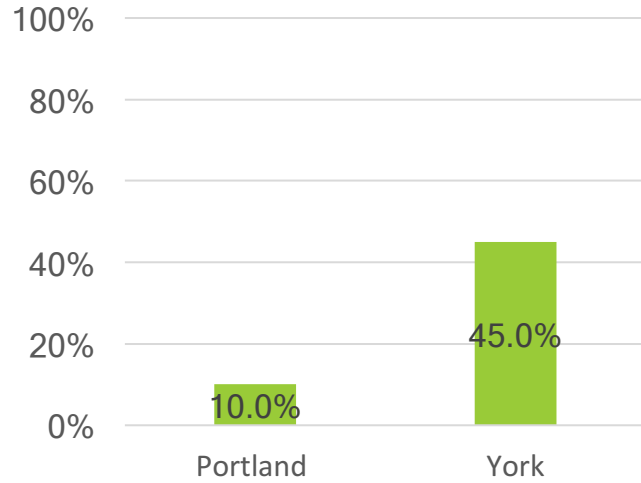
Checked WQ-NO Checked WQ-Yes
P=.425

What were those who checked the warning sign doing in the water?

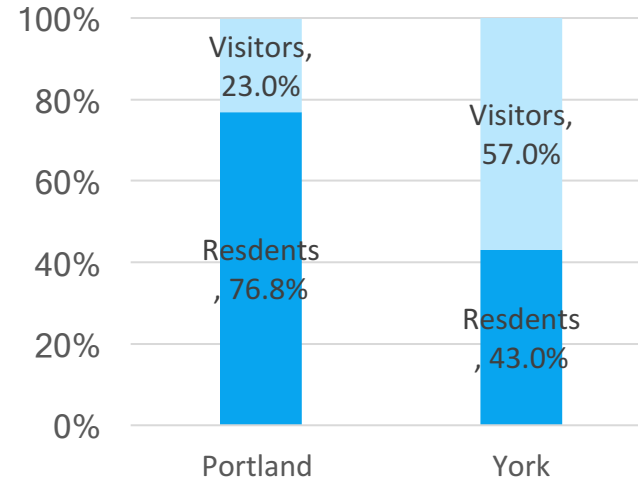
Activities of those who checked warning sign
(Multiple Choice)



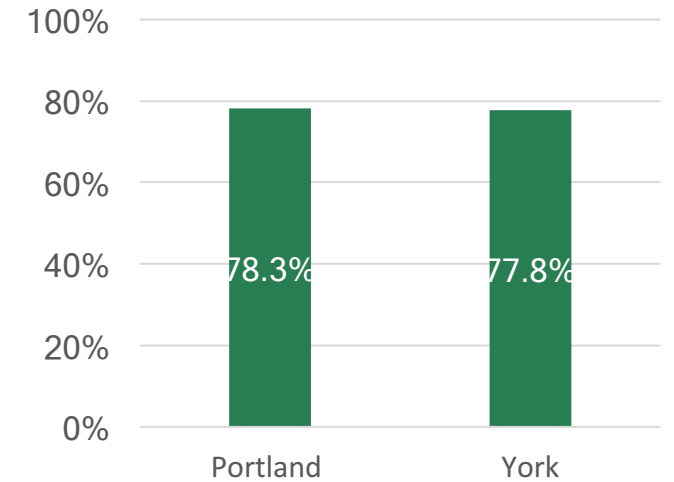
Children in Party



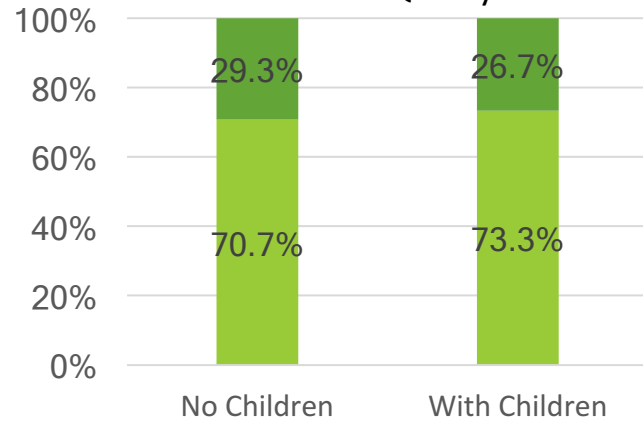
Residents and Visitors



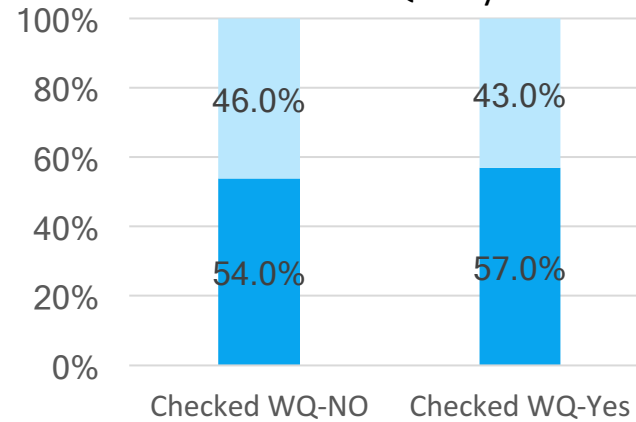
College Degree



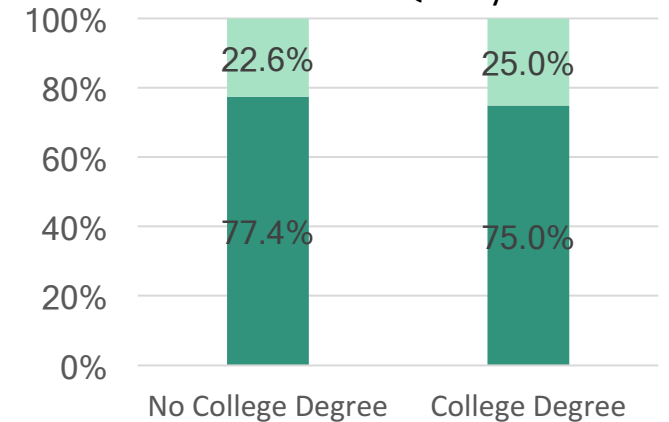
Children and Check Water Quality



Residents/Visitors and Check Water Quality



College Degree and Check Water Quality

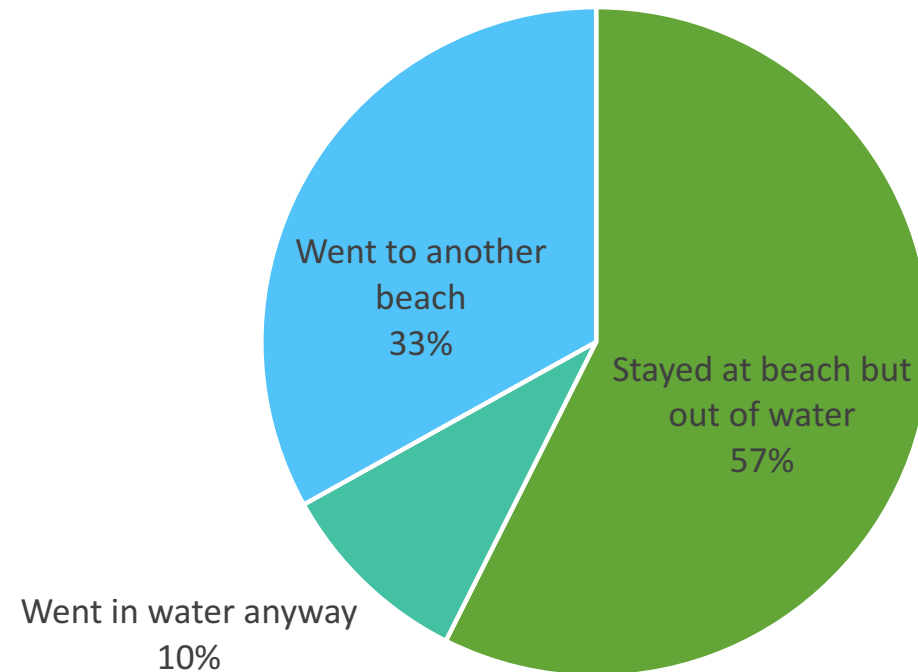


Checked WQ-NO Checked WQ-Yes
P=.365

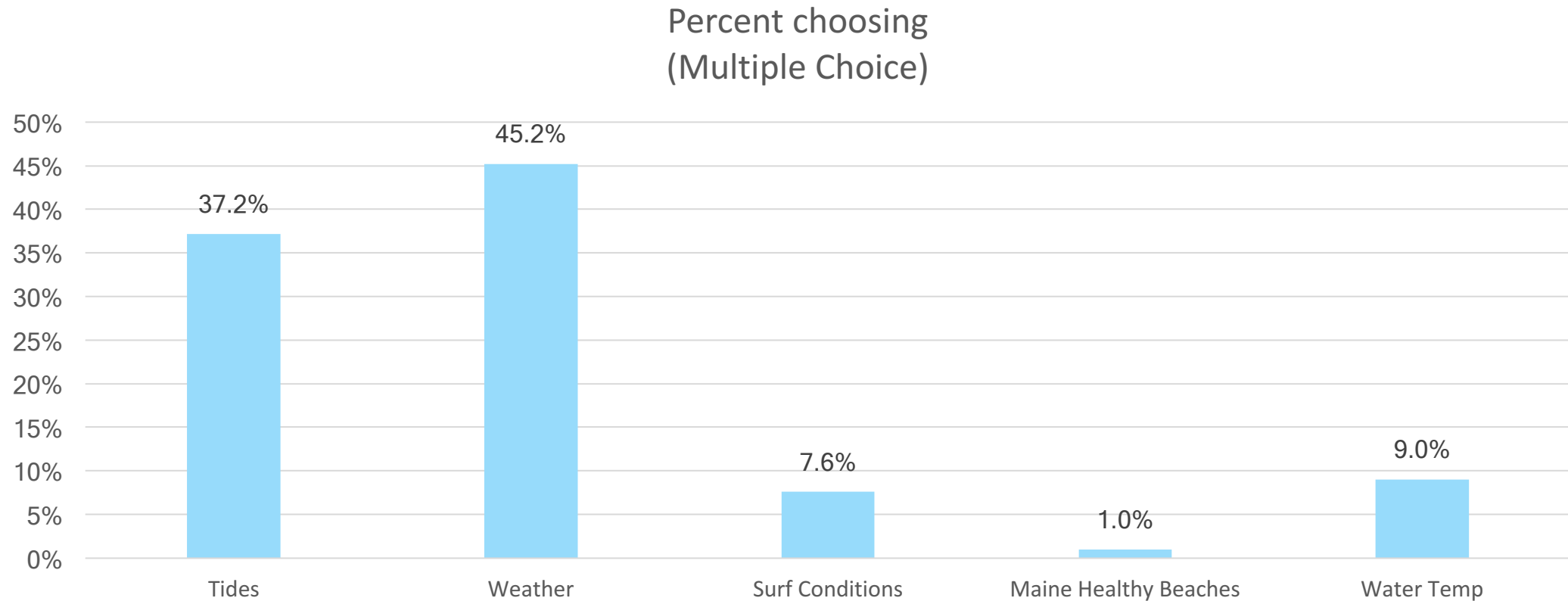
Resident Visitor
P=..634

Checked WQ-NO Checked WQ-Yes
P=.820

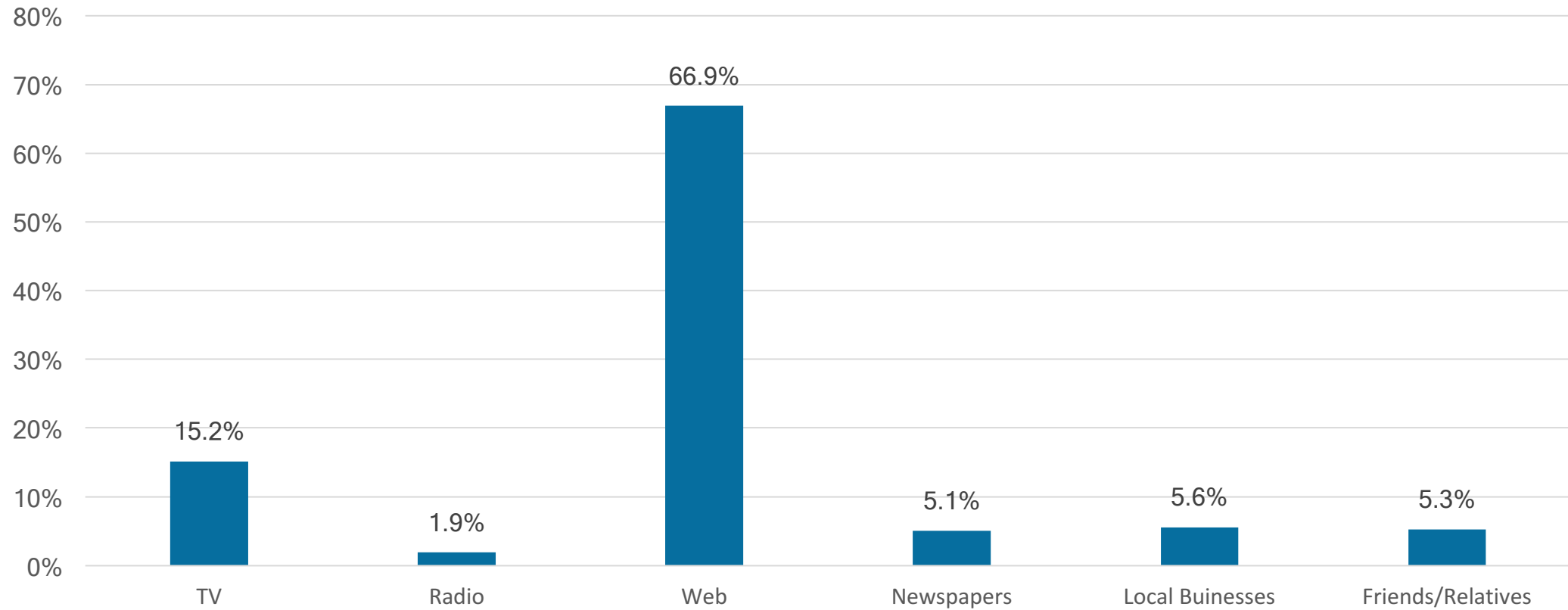
For those times when you encountered a water quality advisory would you say you...



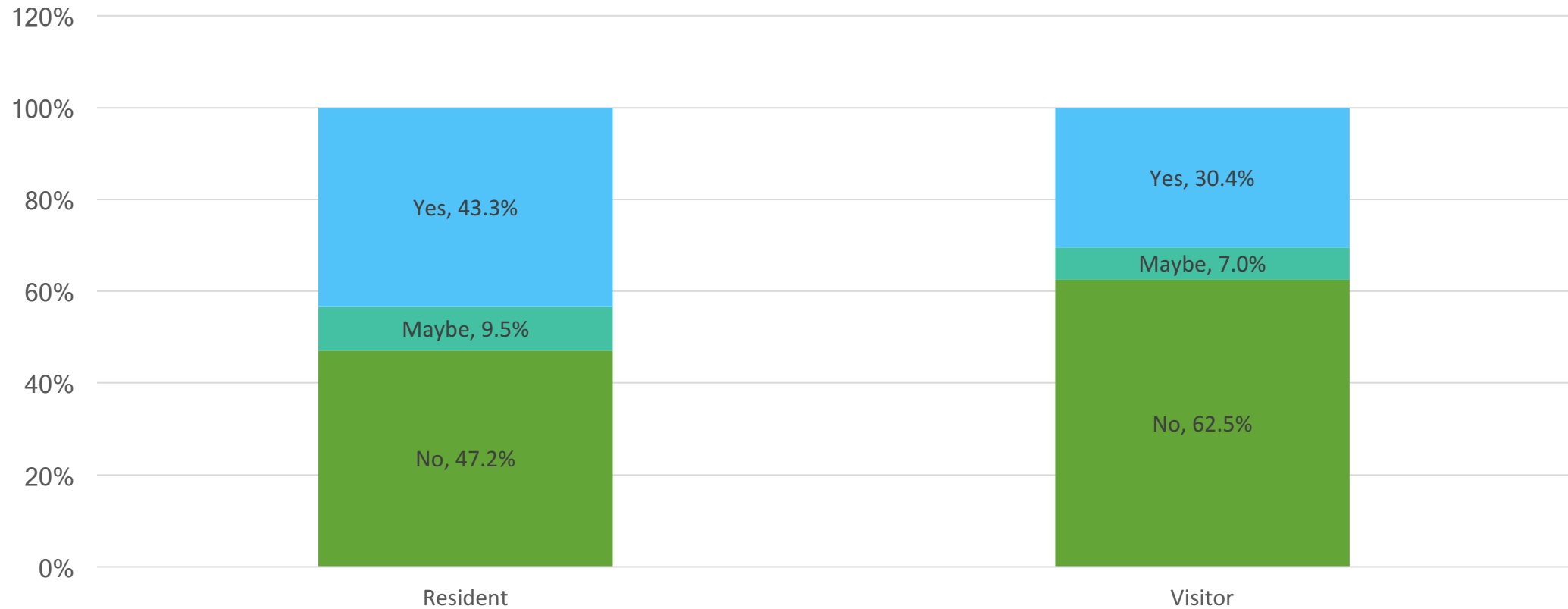
Prior to coming to the beach do you check...?



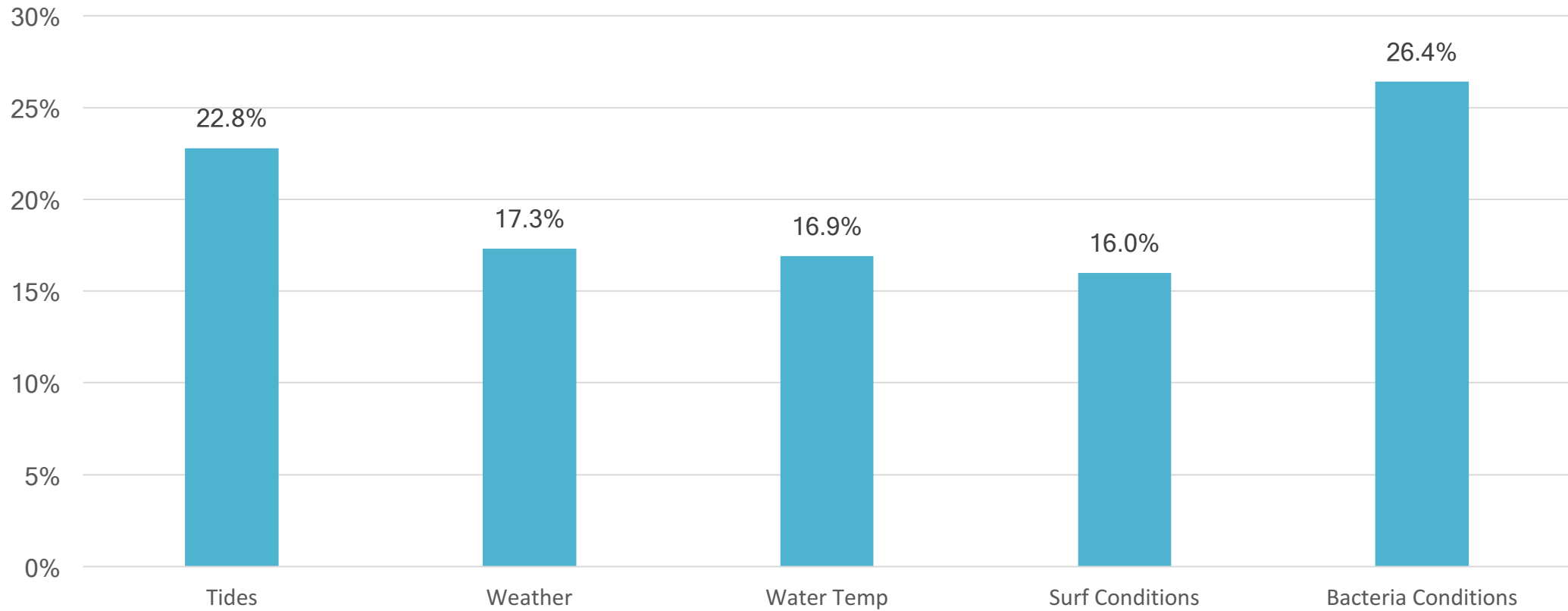
What sources do you check?



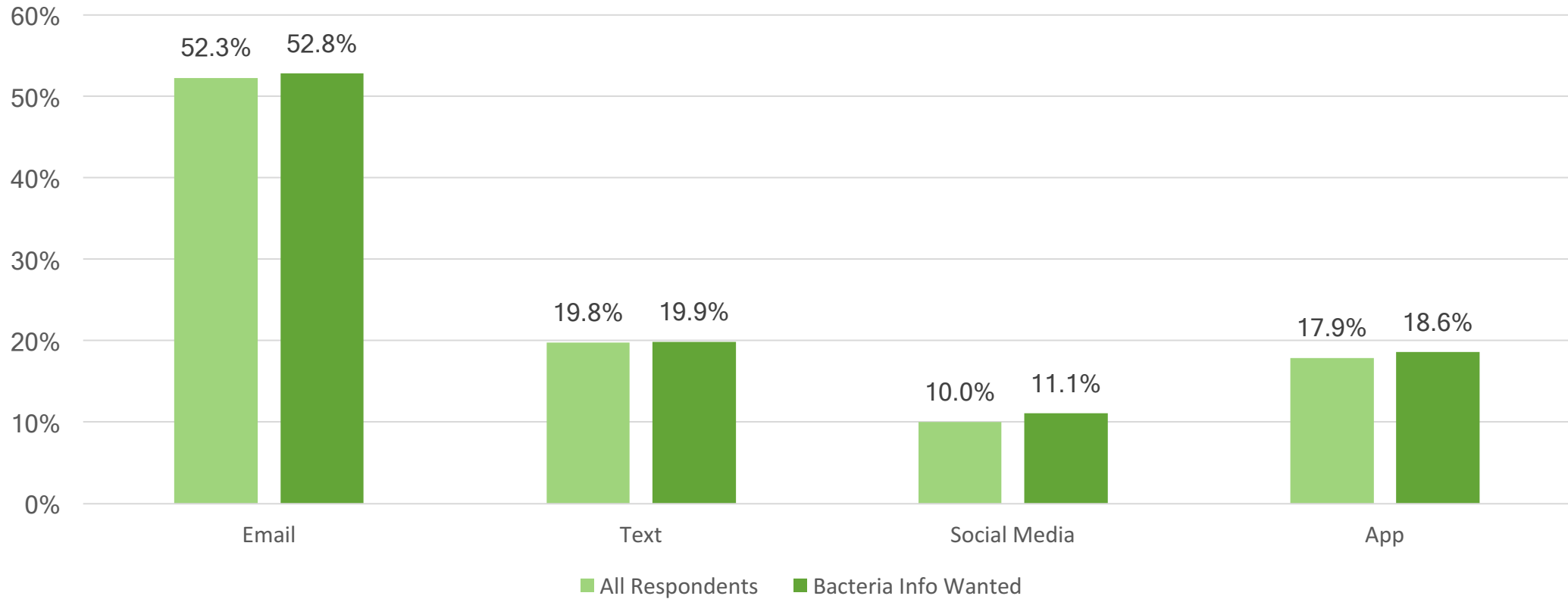
Would you be interested in signing up for internet-based beach information delivered to you?



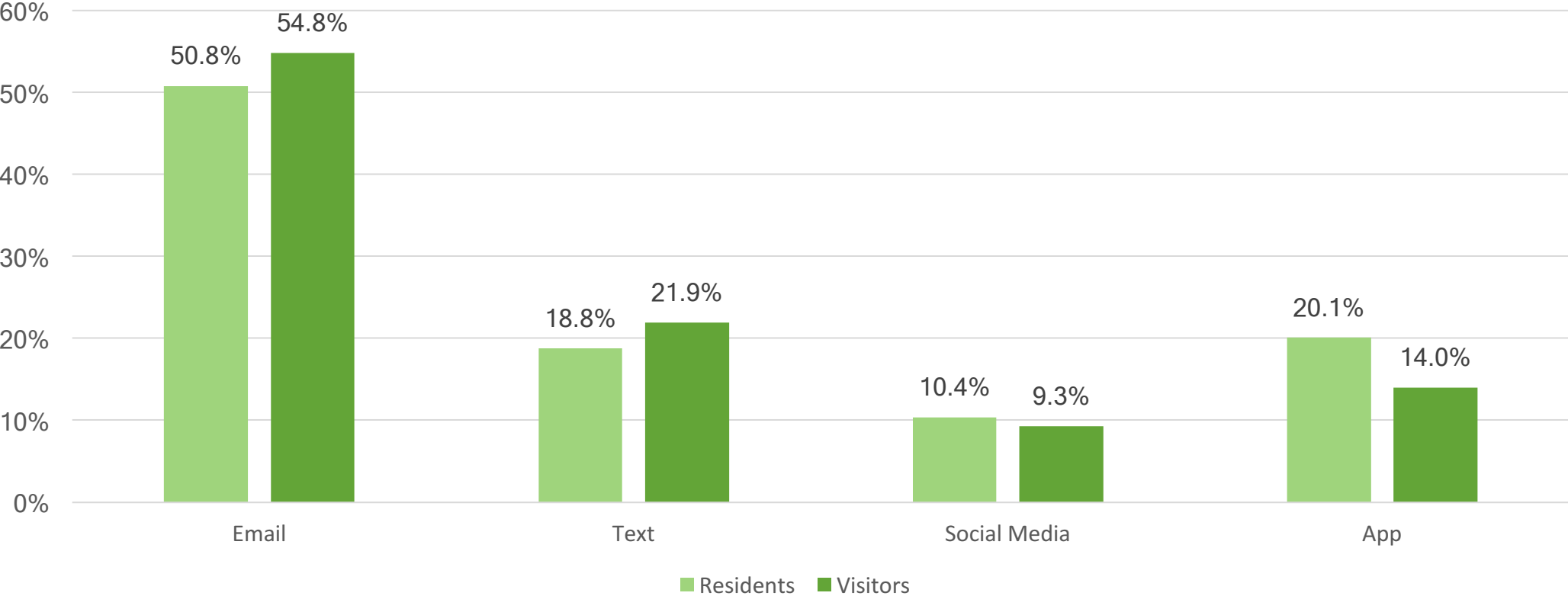
Desired information



Desired mode

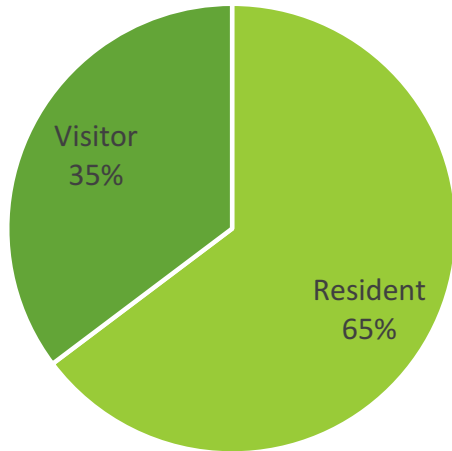


Desired mode for residents/visitors

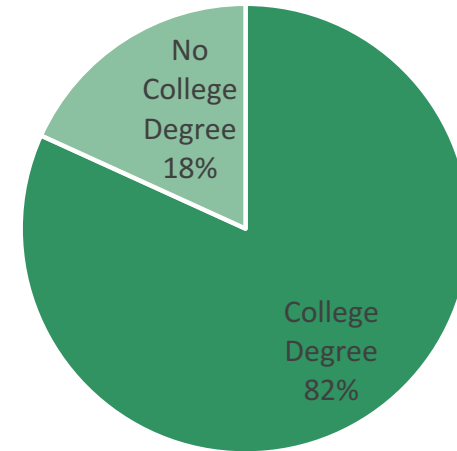


Characteristics of those indicating interest in bacteria conditions information

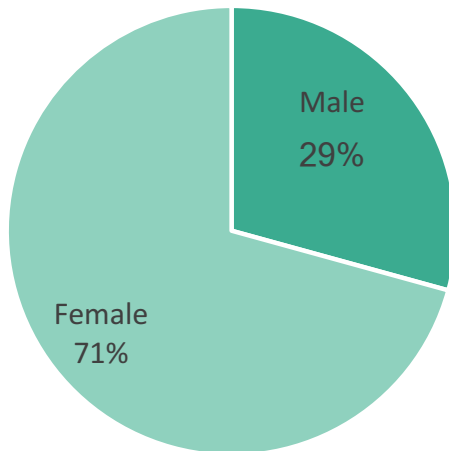
Residence



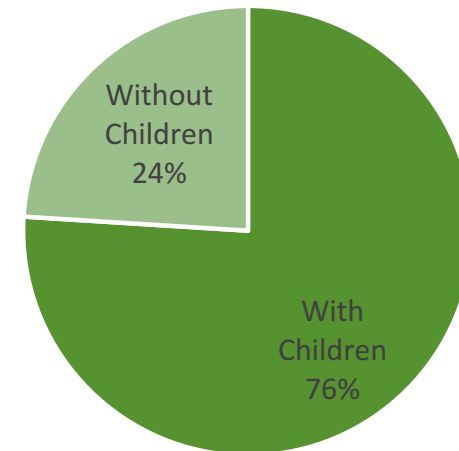
Education



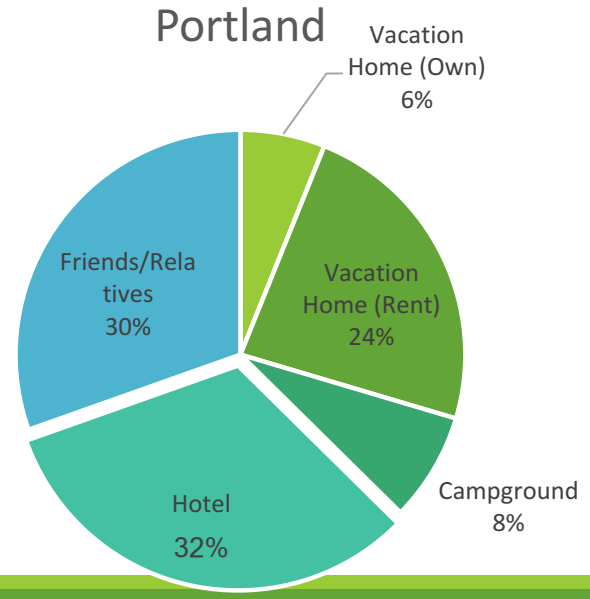
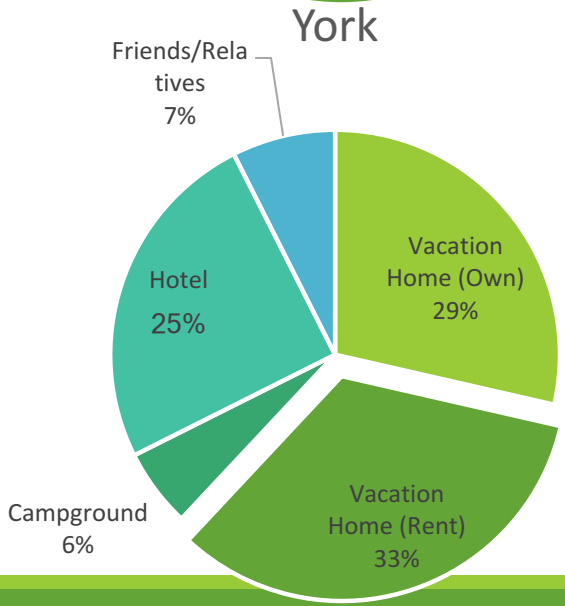
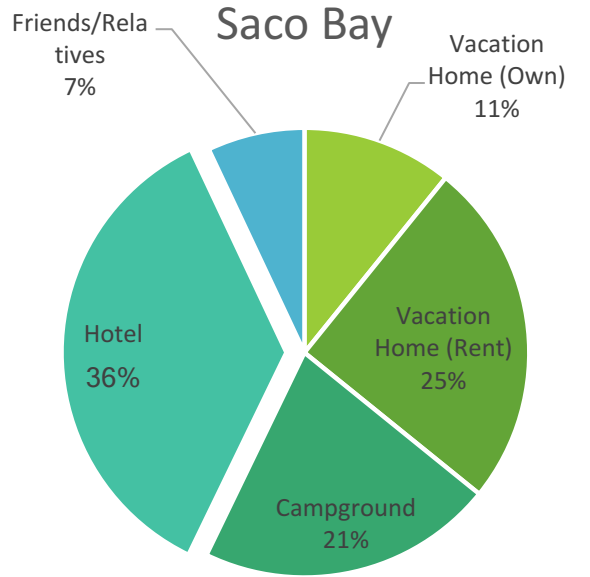
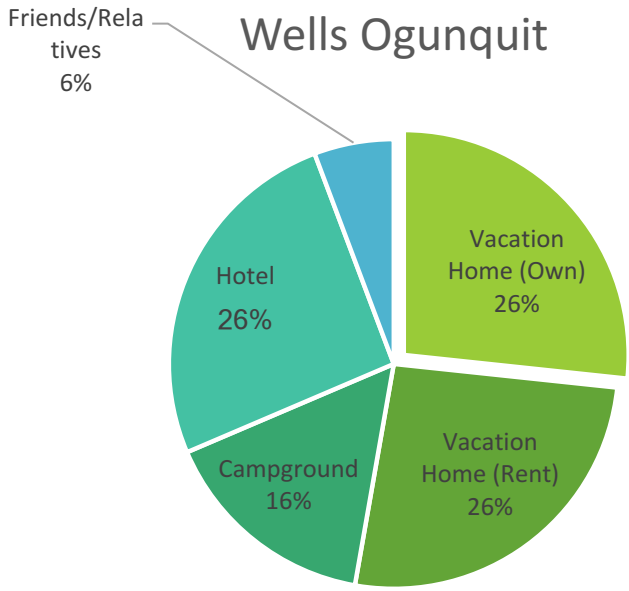
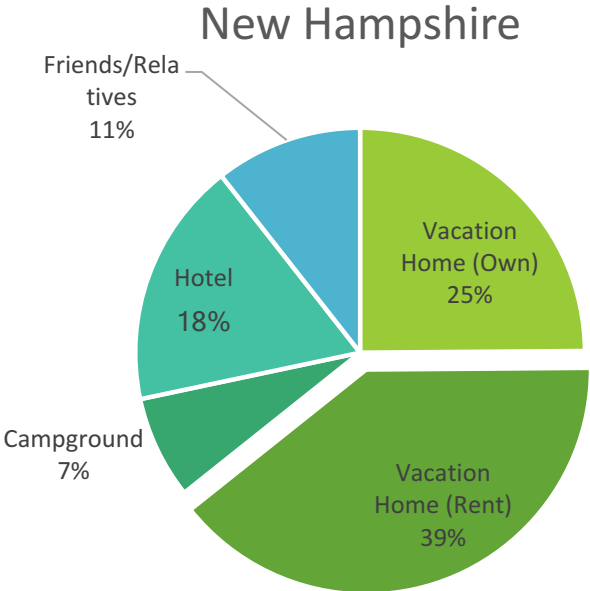
Gender



Children



Different beach systems have different visitor accommodation profiles, requiring different contact strategies



Conclusions

Statewide Coastal Resident Mail Survey

- 74% of sample have not seen or heard of a coastal beach advisory
- News media, family, and friends are primary sources of information about water quality
- More than half of sample understands what makes water quality worse
- 71% of sample has low to uncertain risk perception of water at a beach under advisory
- There is no difference in average or distribution of risk perception by advisory awareness
- Actively seeking safety information and advisory awareness has no effect on risk perception

Intercept Survey in Portland Harbor and York

- Only a quarter of respondents check the sign though more urban beaches do a little better
- No clear distinguishing characteristics of those who do check on beach information
- A significant portion of respondents indicate when they encounter an advisory they take action to avoid the water
- People do check info before going to the beach, mostly weather and tides from the web.
- There is interest in internet info, preferably by email, including bacteria conditions
- Special efforts needed for visitors in places like York

What can be done?

- Call for policy and practices
 - Pushing work forward on communication
 - Public education events
 - Continued collaboration with NEST (UMaine, USM, and UNH)
 - Capacity building with social media presence

- Future work
 - Risk perception
 - Sensitivity to recreation demand

Thank you!

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