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Introduction

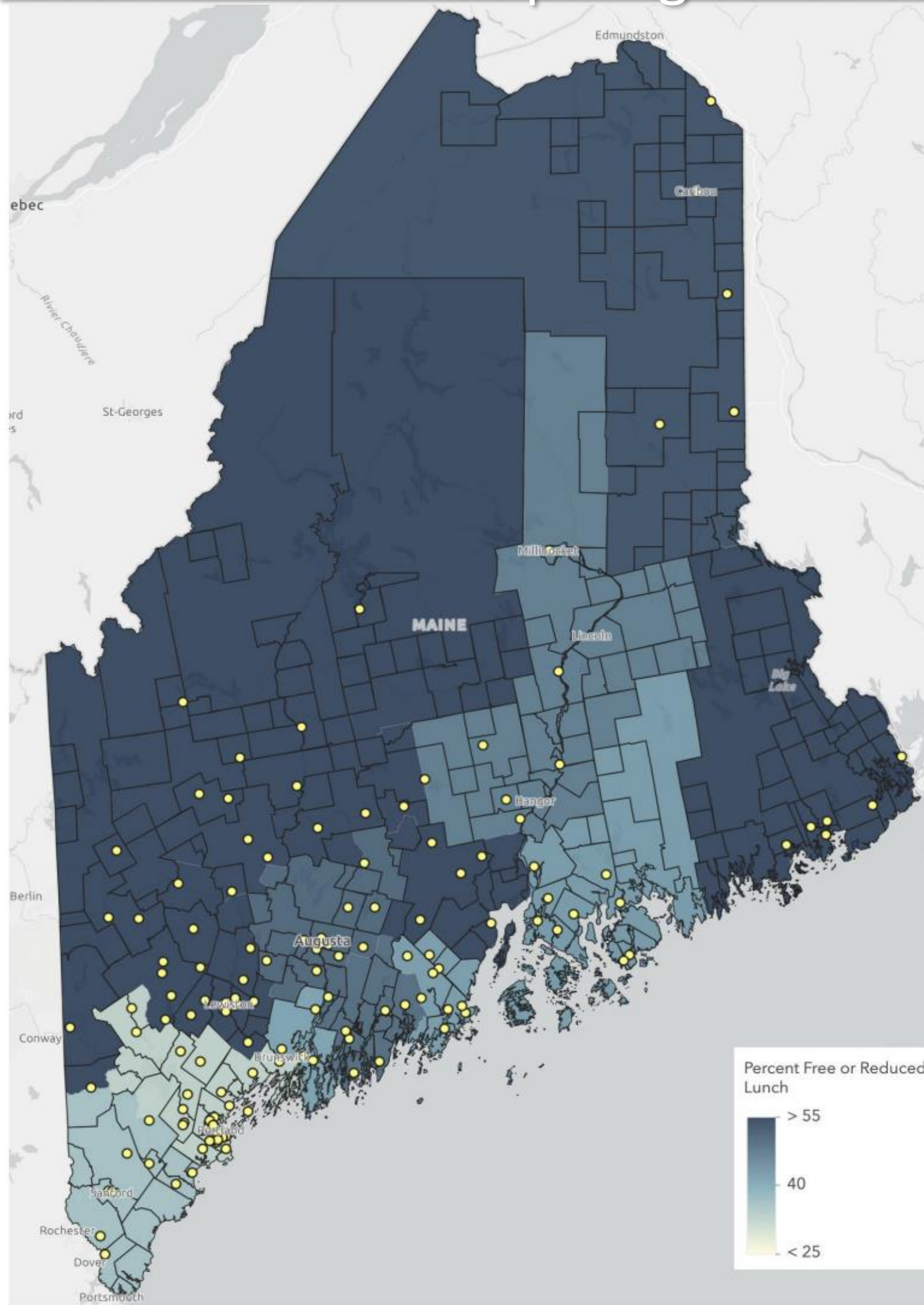
- As climate change rapidly becomes a global concern, it is important to study how children understand and feel about climate change (NSF, 2022).
- When learning about climate change, people experience a range of emotions, including climate change anxiety or fear and dread about the impacts of climate change (Crandon et al., 2022).
- Field trips can support learning about scientific information, such as climate change. But the social context in which the field trip takes place and students' personal backgrounds can affect learning (Dewitt & Storksdieck, 2008).
- We asked how students from different community backgrounds (coastal vs. noncoastal, rural vs. urban, long history of climate change field trips vs. shorter history) would talk about emotions and community when learning about climate change during a field trip.

Participants and Procedure

- Groups of 3-7 students participated in a 2.5-hour field trip to the Gulf of Maine Research Institute (GMRI). Students engaged in four different activities in which they used data visualizations to build understandings of climate change and marine life in Maine.
- After the activities, students were asked to film a short video reflection about they learned about the Gulf of Maine.



Locations of Participating Schools



- We analyzed data from 275 student groups across 16 schools for the school year 2022-2023 and 93 student groups across 14 schools for the school year 2023-2024.
 - 46% of student groups were from coastal schools, 54% non-coastal.
 - 35% of student groups were from rural communities, 65% urban.
 - 22% of student groups came from schools that had been visiting GMRI for ≤ 7 years, 39% from schools visiting 8-15 years, and 39% from schools visiting for > 16 years.

Coding

Code	Definition
Negative Emotion Talk	Describing the events of the Gulf of Maine as being bad or using negative terms to describe climate change (e.g., "It's gonna become worse and worse").
Positive Emotion Talk	Language indicating events happening in the Gulf of Maine as good or using positive terms to describe climate change (e.g., "We shouldn't be afraid").
Community Talk	Talking about how humans contribute to climate change or how climate change will be bad for the Gulf of Maine and the local industry (e.g., "[The sea bass are] eating all of our lobsters and if we lose lobsters, we're gonna lose billions of dollars...").

Results

Figure 1. Students' Community Talk by Community Type

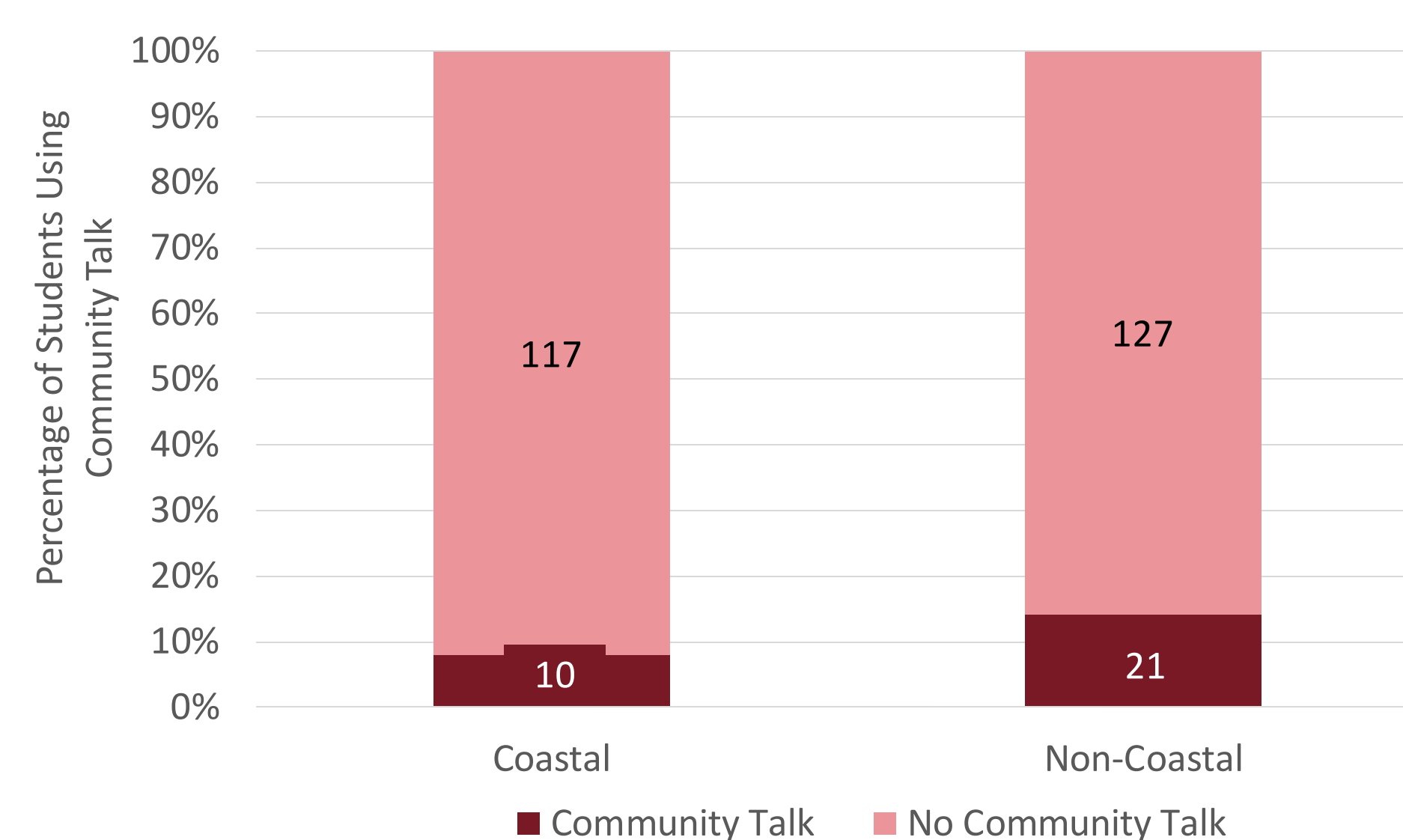
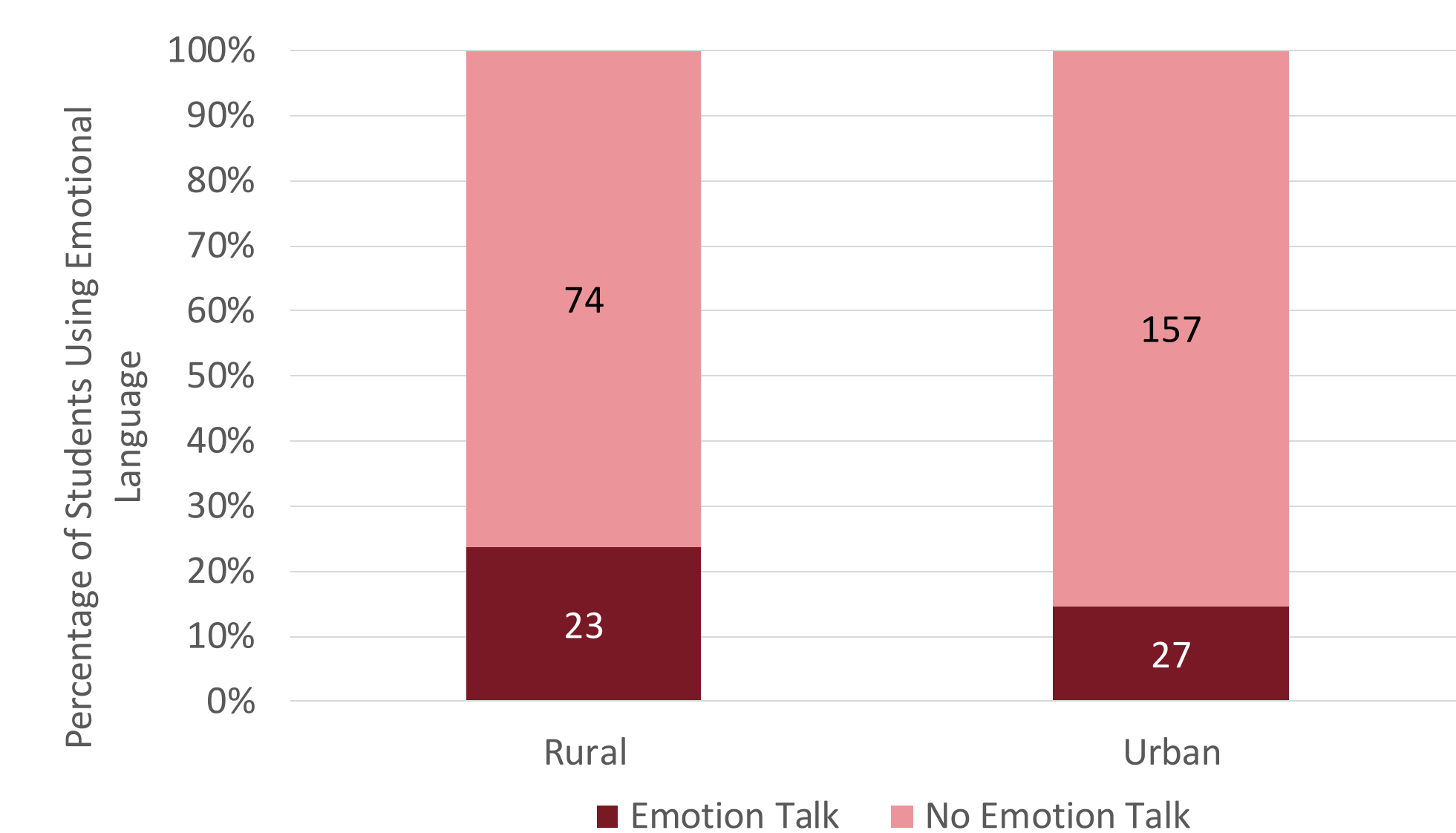


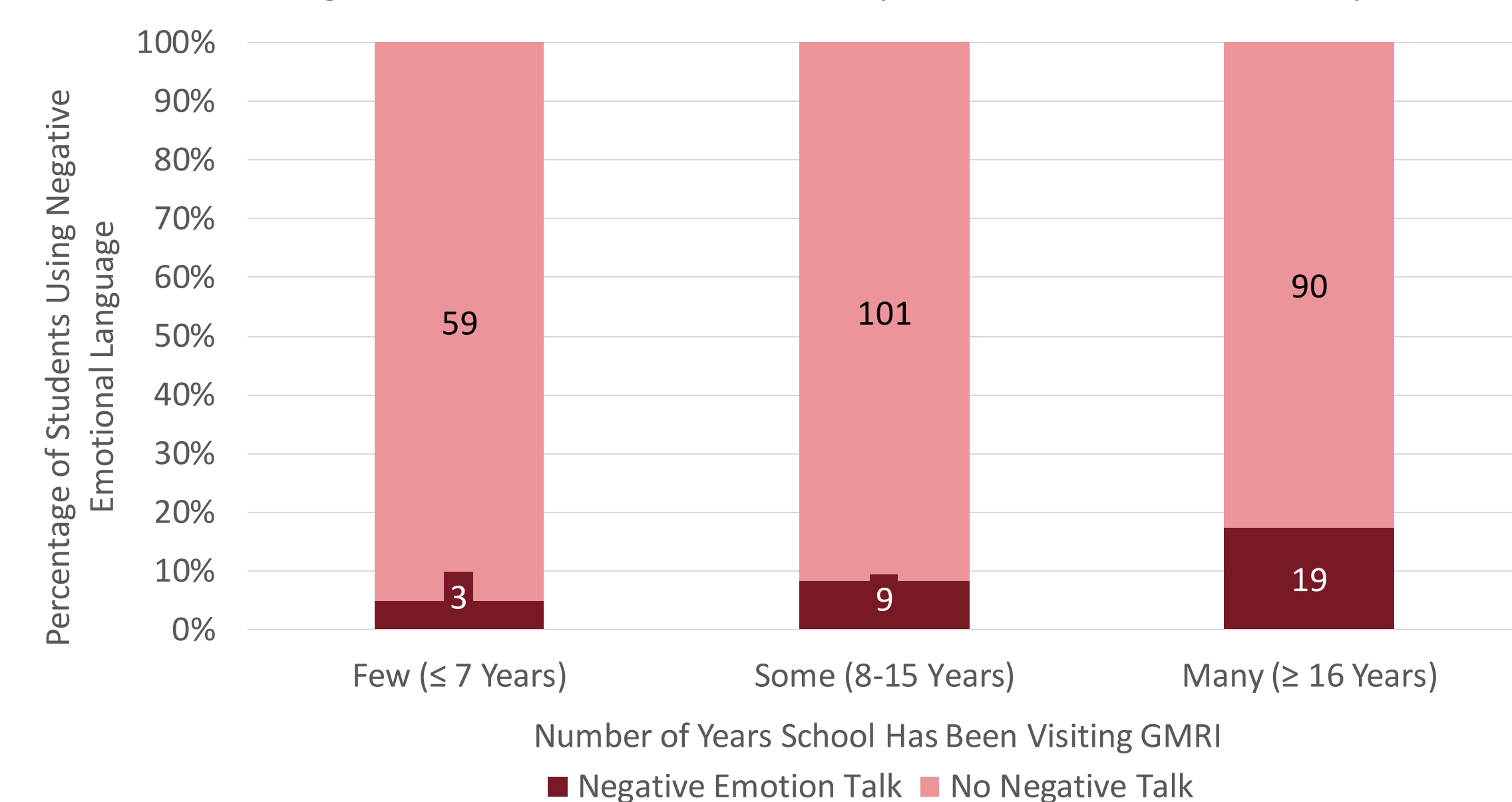
Figure 2. Students' Emotion Talk by Community Type



- There were no differences between coastal and non-coastal schools for emotion talk, but more students from non-coastal communities talked about community, compared to students from coastal community, $X^2(1, N = 275) = 2.73, p = .099$.
- More students from rural communities talked about emotions, compared to students from urban communities, $X^2(1, N = 275) = 3.55, p = .06$.

- Students' use of negative emotional language differed significantly by school visit history, such that students from schools who had been visiting GMRI for more years were more likely to talk about negative emotions, $X^2(1, N = 275) = 7.88, p = .019$.

Figure 3. Students' Emotion Talk by School's GMRI Visit History



Discussion

- Students' community backgrounds impacted their likelihood of using emotional language when talking about climate change and connecting to the impact on community, suggesting that the field trip experience may be more meaningful for certain students.
- Students use more emotional language when their schools have long histories of visiting GMRI, so teachers may be dedicating more time to discussing the effects of climate change. We are working with experienced teachers to implement learning sequences that will extend the impact GMRI learning experience.
- Future work will qualitatively examine the reflections of students who used emotion and community talk to better understand their learning and attitudes.