

Media Contributions to a Chesapeake Bay Watershed Collective Identity: A Tale of Three Cities

Zheng Cui (✉ zkc5130@psu.edu)

Pennsylvania State University

James Dillard

Pennsylvania State University

Juliet Pinto

Pennsylvania State University

Andrew High

Pennsylvania State University

J.J. De La Cruz

Pennsylvania State University

Stephen Mainzer

Pennsylvania State University

Charles Cole

Pennsylvania State University

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Abstract

Although collective action is needed to address many environmental challenges, it cannot proceed in the absence of collective identity. The current study sought to address the question of whether or not a collective identity exists among residents of the Chesapeake Bay Watershed and, if so, what it might look like. The raw data were news stories drawn from local papers published in municipalities located at the headwaters of the Susquehanna River, midway down the Susquehanna, and where the river meets the bay. Computerized content analysis assessed the frequency with which the *Chesapeake Bay* and *watershed* were mentioned alongside a set of keywords thought to represent different facets of identity (e.g., *agriculture*, *fishing*, *swimming*). The results showed substantial variation in frequency across time and place, but, low absolute levels of coverage of the bay and the watershed. Multidimensional scaling revealed different structures to collective identity as a function of place. These differences in content may be attributable to varying demographic and environmental characteristics. Proximity to the bay may partially explain some of these differences, but, to the extent that a collective watershed identity exists at all, it is complex and heterogeneous.

Introduction

When explorer John Smith arrived at the Chesapeake Bay in the 17th century, he found an estuary that teemed with blue crab, rockfish, and oysters that “lay as thick as stones” (Captain John Smith n.d.). Indeed, the Bay was once one of the most productive bodies of water in the world (Cooper, 1995). Primarily due to fertilizer runoff, wastewater, and stormwater from the Chesapeake Bay watershed, the oyster, crab, and rockfish populations have been decimated (Schulte 2017; Seitz 2020; Shepherd et al. 2018). By every indicator, the health of the Bay is poor (UMCES, 2020).

The causes of the deterioration of the Chesapeake Bay are closely tied to human behaviors that occur upstream in the Chesapeake Bay Watershed (CBW). Consisting of 64,000 square miles, the CBW is vast in geographic terms and hugely varied with respect to economics, politics, and culture. Diversity of interests and a lack of awareness of the impact of upstream and downstream actions on the Bay are major impediments to restoring the Bay to health. However, as one ecologist noted “Nothing is going to change until people in the whole Watershed understand that they are all in this together.”

This observation turned our attention to the literature on collective identity because collective identity often compels collective action. The central premise of this perspective is that individuals construct a sense of belonging and common purpose through communicative acts (David & Bar-Tal, 2009). At minimum, collective identity requires knowledge of the existence of a group and one’s membership status relative to it. One means by which individuals might be exposed to this information is media coverage of the CBW, where coverage would logically imply that residents were part of a collective defined by the boundaries of the watershed. Because the CBW is so large, we examined coverage of the bay in a sample of three local newspapers located in the upper, middle, and lower portions of the watershed. Using computerized text analysis, we addressed the following questions: How frequently are the bay and the

watershed covered? What is the content and structure of that coverage? and to what extent do coverage and structure vary by time and place? To provide a theoretical lens, we first consider the literature on collective identity in more detail.

Identity and Identity Formation

What is collective identity? Although researchers have yet to coalesce around a single definition, it is easy to see common threads in the writings of different authors. For example, Polleta and Jasper (2001) conceptualized identity as a "...cognitive, moral, and emotional connection with a broader community" (p. 285). Similarly, Taylor and Whittier (1995) contended that collective identity is "...the shared definition of a group that derives from members' common interests, experiences, and solidarity" (p. 105). Two key features of these definitions include (a) the existence of some group and (b) the individual's membership within it. These ideas are simple but fundamental and necessary conditions for the existence of identity. Simply put, individuals must have knowledge that a group exists and that they are, at least potentially, a part of it (cf., Breakwell, 1986).

Another aspect of these definitions is more variable. Both definitions stress that the individual's connection with the group can be complex, involving thoughts, feelings, moral judgments, and shared experiences. But it is implausible that such complexity emerges full blown. Rather, as with any relationship, collective identity evolves over time. Breakwell (1986) proposes a cyclical process that includes three steps. First, individuals are exposed to identity-relevant information. Next, they evaluate that information against information previously stored in memory. Finally, if the information is deemed acceptable, it is integrated into the individual's self-knowledge structure. The process repeats over time and with each (successful) cycle, collective identity becomes stronger and more nuanced. This logic underscores the dynamic nature of identity and points toward the need to incorporate time into empirical studies of identity.

As the cyclical model suggests, information exposure is key. In fact, many writers assert that collective identities can be seen in the actions and interactions of interlocutors (e.g., Taylor & Whittier, 1995). Hunt and Bedford (2004) made this point eloquently when they remarked that "...collective identities are talked into existence" (p. 445). Part of this process involves what has been called *boundary work*. As the phrase implies, the focus of boundary work is that of establishing the perimeter of the group. It involves defining who "we are" and who "we are not" (Fominaya, 2010, p. 395).

It is often the case that boundary work is a complex process of negotiating who qualifies for group membership based on their values, history, or willingness to engage with the group's purpose (Ashforth et al., 2000). But, in the case of location-based identities, such as the CBW, that process is greatly simplified. Geophysical boundaries based on the drainage behavior of water define which individuals reside inside and outside of the CBW. In this context, *boundary work* is not metaphorical, but literal. Attribution of group membership is as straightforward as the assertion "we live in the CBW", and the accuracy of that claim is factual based on a person's residence. As a group, news media constitute one potentially important source of knowledge pertaining to attributions of group membership. Especially at the local

level, news media play key roles in communities, including agenda setting, awareness, and engagement functions, all of which have import for how communities decide to address changes in environmental conditions. Local news outlets can be important facilitators of social change via information mobilization and consensus seeking, but most fundamentally by creating awareness of group membership (Nicodemus, 2004).

Identity and Media Discourse

To the extent that a collective identity exists, it must appear in the communal discourse of its members, which should include media. Giddens (1991) notes that mediated experiences “...have long impacted both self-identity and the basic organization of social relations” (p.4). Various factors can impede or facilitate the construction of a community. What Altheide (2004, p. 294) termed the “media logics,” or the rationales, emphases, orientations, and assumptions that undergird media production, processes, and messages, can serve to impede or sometimes facilitate the creation of a sense of *we*. Logics that emphasize entertainment, drama or action; language that is meant to be evocative or promote emotion rather than accuracy; personalization of narrative, rather than focusing on the efforts of the group can serve to discourage the prioritization of the collective group over the individual. They can also function to bridge the personal and collective, as communities seek to build networks of action (Gamson, 2009, p. 293).

Our study seeks to understand the potential for developing a collective identity among residents of a geographically large watershed by identifying key terms affiliated with watershed issues, uses, and communities. The uneven nature of news coverage of environmental issues or geographies has been the subject of much research (e.g., Duan & Takahashi, 2017; Schmidt et al., 2013), and the rationales for the presence or absence of such content are dependent on numerous factors. News can also be considered a social and cultural construct that reflects myriad influences operating at multiple levels, including factors within newsrooms, organizations and media systems, as well as individual perceptions and behaviors (e.g., Bennett, 1982; Gans, 1979; Tuchman, 1978). This is particularly the case for environmental issues because journalists must navigate shrinking newsrooms and other organizational constraints to translate often complex and abstract issues or policy discussions that may well not make it past gatekeeping considerations of fickle audience attention. In addition, journalists’ well-documented overreliance on official sources and narratives can sometimes serve to amplify weaponized political discourses surrounding environmental issues and actors, further alienating audiences and undermining any sense of identity building around those issues or regions. Yet, news stories are probably the primary sources of information for people living within boundaries of watersheds and other areas, and the degree to which these news stories contain words associated with the CBW has not been studied elsewhere.

Through their publications, local newsmakers can play especially prominent roles in making a collective identity more or less salient along with fostering senses of community, geographic identity, and social cohesion (Abernathy, 2018). Kaniss (1991) argued that a central function of local news media in the U.S. has been to produce local identity as a means of linking local audiences, a necessary condition to sell

their products in regional markets. Local journalistic interpretative communities create meanings from events, both within their communities or those happening elsewhere, that resonate with their audiences and their regional identities (Gutsche & Shumow, 2019, p. 448). Journalistic representations of geographies and those living within them can also serve to formulate claims about them (Pietikäinen, S., & Hujanen, 2003, p. 252); revitalize local communities by highlighting cultural commodities (Rausch, 2009); highlight local angles of climate change impacts given audiences' direct experiences (Jacobson et al., 2019); allow spaces for newsroom entrepreneurs trained in climate journalism to push climate stories past editorial gatekeepers (Pinto & Vigon, 2018); or serve to highlight national mitigation efforts in state-controlled media systems (Pinto & Vigon, 2018). Thus, local news sources can play an instrumental role in covering environmental issues and fostering a sense of collective identity grounded in geographical or environmental issues.

In terms of mediated approaches to collective identity, there are various conceptual approaches to collective identity. In this study, we looked at message content and took "...an essential pragmatic approach" (Neuendorf & Skalski, 2009 p.209) to researching collective identity represented through collections of message-centered empirical data. News media are considered to have the ability to disseminate messages to all citizens. News coverages not only announce issues and events but also diffuse the values of the culture in which they are produced. Therefore, news media are one of the social institutions that construct the collective identity of a group (Major, 2017). By covering issues such as climate change, news media can symbolically produce and reproduce ideas of the world and the audience's place in it; therefore, its role in identity formation is essential (Olausson, 2009, 2010)

Communication is a fundamentally important component of identity construction and maintenance (Gamson 2009). Media content that incorporates identity-relevant information may be used as a first step toward the development of a collective identity, particularly frequencies and associations of and between issues that may activate senses of collective identity or belonging. Using local newspapers, we investigated the language associated with Chesapeake Bay issues, how frequently these issues occur, and how they may relate to one another in different geographic regions.

Research Questions

Collective identity within a certain geographical area can be intertwined with naming or branding of places. Branding of a place helps foster the formation of collective identity, while collective identity of certain place is usually anchored to the place brand (Kornum et al., 2017; Pedeliento & Kavaratzis, 2019; Varga, 2013). To form a collective identity, the branding of *Chesapeake* must be named first. So, we asked

RQ1a: To what extent are local newspapers providing coverage of the CB and CBW?

RQ1b: Does coverage vary by place or time?

An essential part of building any identity involves explicating its meaning. Becoming a farmer, for instance, requires more than an understanding that farmers are people who manage land for the purpose of raising livestock or crops. Someone who embraces the farmer identity must become conversant in tractors, feed, fencing, and more. Likewise, the CBW is a complex and multifaceted area. Especially with an issue as large, diverse, and complex as the CBW, coverage of relevant issues is not static. Coverage of events and issues that could arouse a collective identity likely vary based on several factors. Because David and Bar-Tal(2009) emphasized the historical/temporal and location-based aspects of collective identity, and these factors map on to measurable differences in newspaper coverage, we investigate how the nature of a CBW identity, as seen in newspaper coverage, varies based on time and place. As a general theoretical matter, we asked about the content and structure of the CBW identity.

RQ2a: What are the components and structure of the CBW identity?

RQ2b: Do these features vary by place or time?

Method

Sample of Locations and News Outlets

Because it was not possible for us to conduct a census of news coverage of the CBW, we chose three municipalities on the Susquehanna River, the primary tributary of the Bay. Cooperstown, NY sits at the headwaters of the North Branch of the Susquehanna River. It is the home of the *Cooperstown Crier*, a weekly newspaper with a circulation of 3,000. Selinsgrove, PA is located roughly halfway downstream along the West Branch. Its local paper, *The Daily Item*, has a Monday through Saturday circulation of 15,174. Finally, Havre de Grace, MD is on the Bay at the mouth of the river. *The Aegis* publishes on Wednesday and Friday with circulations of 14,045 to 14,144, respectively. Table 1 provides descriptive information about each of the three locales.

Table 1

Sociodemographic Features of the Three Municipalities

| | Cooperstown | Selinsgrove | Havre de Grace |
|-----------------------------|-------------|-------------|----------------|
| Place type | Village | Borough | City |
| Acres | 1,178 | 1,216 | 4,019 |
| Total Population | 1,926 | 5,927 | 13,652 |
| Pop. Density (persons/acre) | 1.6 | 4.9 | 3.4 |
| Median Age | 49.6 | 26.0 | 45.1 |
| White | 84.1% | 88.0% | 74.5% |
| Black/African American | 4.7% | 4.4% | 16.0% |
| Asian | 8.3% | 1.7% | 2.2% |
| Bachelor's degree | 21.9% | 20.3% | 20.7% |
| Advanced degree | 39.3% | 11.9% | 19.5% |
| Median Household Income | \$57,180 | \$52,770 | \$77,690 |
| Median Home Value | \$291,700 | \$154,600 | \$287,500 |
| No Internet access | 9.1% | 16.7% | 13.2% |

Data

We utilized the archiving service NewsBank to access stories that were published in local papers at the three sites under study. Because the earliest date of available articles varied across papers, we utilized the eight years from January 2012- May 2020, the longest period for which data were available for all three outlets.

Selection of Keywords

We examined different approaches to structuring CBW-related concepts by reviewing organizational schemes already in use by Bay-relevant stakeholders. We found the scheme used by the U.S. Environmental Protection Agency to be particularly useful for our purposes. It notes that a healthy watershed benefits local communities in three categories: environmental, economic, and recreational (Environmental Protection Agency, n.d.). We selected 13 keywords that we judged to be a representative sample of the three categories: *agriculture, bird, crab, fishing, flooding, hiking, nitrogen, phosphorus, photography, pollution, sediment, swimming, water quality*. Given the importance of *watershed* to our inquiry, we also added that term to our list of keywords.

Computerized Language Analyses

In August of 2020, we performed searches in Newsbank with the combination of *Chesapeake* and each of the keywords to create a dataset of news articles. This produced 544 hits. Some articles, however,

were counted twice or more because they included more than one keyword. After elimination of duplicates, the database contained 312 articles. The articles themselves could be of any type, including hard or soft news coverage, editorials, letters to the editor, other opinion pieces or death notices.

To better understand the content and structure of these stories, we examined the frequency of occurrence of each keyword and the co-occurrence among word pairs. It was typical for the co-occurrence of word pairs to be unequal. For example, in a given article *agriculture* might appear five times when *bird* appeared only twice. In such cases, we recorded the higher of the two values as the co-occurrence score.

To generate these data, we employed the corpus analysis tool AntConc (Anthony, 2005). Since AntConc only supports the concordance search of one word or word group, we cross-searched keywords in different folders, where a folder contained all of the articles in which the keyword appeared. For example, we searched *agriculture* in the remaining 13 keyword folders to determine how often this term co-occurred with others. To look at the frequencies of keywords in each pair of concurrences, we used the concordance plot search function of AntConc to calculate how many times every keyword was mentioned in each location.

Multidimensional scaling (MDS)

To explore the structure among the keywords and focal concept (i.e., watershed), we used multidimensional scaling. This technique is a means of visually representing a set of concepts with regard to their similarity with one another. Technically, it is a mathematical method for displaying a matrix of proximities in N -dimensional space. For MDS users, the first problem to resolve is the number of dimensions (M) that best captures variation among the concepts.

Two statistics aid in this decision. First, *stress values* of .00 are perfect, whereas values of .20 are considered poor according to the Kruskal and Wish (1978) rule of thumb. But, regardless of sample size, stress values decrease as dimensionality increases. Second, the R^2 for each N -dimensional solution represents the proportion of variance accounted for by that solution. Larger values are preferred and higher dimension solutions yield higher R^2 values. Because both stress and R^2 are influenced by the size of the matrix and the distribution of data within it, the overriding criteria for choosing among the solutions are subjective- parsimony and interpretability.

The ALSCAL routine in SPSS version 25 was used to conduct a nonmetric multidimensional scaling of the word count data. Because location was of interest, the first step to creating input matrices was to partition the data by town. Next, we created a within-story co-occurrence matrix for each location. This involved identifying the number of times each of our 14 keywords appeared within each story. The result was a similarity (i.e., co-occurrence) matrix for each location. Because ALSCAL requires dissimilarity matrices as input, we inserted values of 0 in the diagonal to indicate that each keyword was identical with itself (i.e., not at all dissimilar). Off-diagonal entries were computed by subtracting each element in the co-occurrence matrix from the highest frequency value in that matrix plus 1. Thus, all off-diagonal elements were greater than 0 and higher values represented higher levels of dissimilarity.

Results

Coverage of the Chesapeake Bay

RQ1a asked to what extent are local newspapers providing coverage of the Chesapeake Bay. The data suggest that coverage is quite limited. Our search returned a total of 312 articles over an eight-year period. This number may at first appear substantial, but it is an average of 39 per year in total or 13 per year per paper. Given a total number of stories equal to 13,809 for Cooperstown, 108,979 for Selinsgrove, and 13,444 for Havre de Grace, the proportion of stories focused on the Bay was tiny ($312/136,232 = .002\%$).

RQ1b focused on whether coverage varied by place and time. Figure 1 gives an affirmative answer to both. Over the eight-year period under study, *The Cooperstown Crier* published 18 articles compared to 110 for Selinsgrove's *Daily Item* and 184 for the Havre de Grace paper, *The Aegis*. Thus, raw frequency of coverage is inversely related to distance from the bay. The corresponding proportions were .02%, .0001%, and .01%.

Figure 1 also makes it clear that coverage varies substantially over time. Variability is greatest in Havre de Grace and somewhat more modest, but still notable in Selinsgrove. There is far less variability in the Cooperstown data, but the variance is constrained by the low frequency of articles. In an attempt to understand what might account for the variations over time, members of the research team grouped the articles by location. This effort did not reveal any event or set of events that explained the peaks and valleys in Figure 1. However, the patterns in Figure 1 are sufficient to answer RQ1b: Frequency of coverage of the Chesapeake Bay did vary as a function of place and time. In fact, variability in the frequency of coverage appears to increase as locations are closer to the Bay.

Content of CBW Identity

RQ2a inquired as to the content of the CBW identity. Table 2, which presented the frequency of keywords in total and broken by municipality, provides an answer. It is important to bear in mind that all of the articles in this table were screened such that they contained one or more mentions of *watershed*. After looking first at the column labeled Row Total, it can be seen that *watershed* is the most frequently mentioned keyword (92 times) when the data are collapsed across location. This is followed by *pollution* (73) and *water quality* (66). *Fishing, agriculture, and flooding* come next with 51, 49, and 37 occurrences respectively. Thus, these five terms comprise the main contents of the watershed identity, at least as it is conveyed in local newspapers across municipalities.

Table 2 *Frequency of Keywords by Municipality*

| Keywords | Cooperstown | Selinsgrove | Havre de Grace | Row Total |
|---------------|-------------|-------------|----------------|-----------|
| agriculture | 1 (3%) | 26 (14%) | 22 (8%) | 49 |
| bird | 1 (3%) | 5 (3%) | 16 (6%) | 22 |
| crab | 1 (3%) | 5 (3%) | 16 (6%) | 21 |
| fishing | 3 (10%) | 20 (11%) | 28 (10%) | 51 |
| flooding | 0 (0%) | 9 (5%) | 28 (10%) | 37 |
| hiking | 3 (10%) | 4 (2%) | 5 (2%) | 12 |
| nitrogen | 1 (3%) | 12 (7%) | 9 (3%) | 22 |
| phosphorus | 1 (3%) | 9 (5%) | 5 (2%) | 15 |
| photography | 0 (0%) | 4 (2%) | 10 (4%) | 14 |
| pollution | 4 (13%) | 33 (18%) | 36 (13%) | 73 |
| sediment | 0 (0%) | 17 (9%) | 18 (7%) | 35 |
| swimming | 2 (7%) | 6 (3%) | 27 (10%) | 35 |
| water quality | 1 (3%) | 38 (21%) | 27 (10%) | 66 |
| watershed | 12 (40%) | 52 (28%) | 28 (10%) | 92 |

Turning attention to the frequencies by municipality, it appears that there are large variations, but they are difficult to judge in the frequency data. The proportions, however, allow for direct comparison and produce a surprising finding. After adjusting for base rate, frequency of occurrence of the keywords is remarkably similar across locations. That is, the proportions in each row do not differ much from one another. This suggests that the overall content of the news articles in the three locales are homogeneous. There are two notable exceptions. *Water quality* is higher in Selinsgrove than either Cooperstown or Havre de Grace. This may be the result of frequent flooding in Selinsgrove and the effect of flooding on drinking water. Second, *watershed* is mentioned comparatively more often in Cooperstown than in Selinsgrove, where it is mentioned more often than in Havre de Grace. This may follow from Cooperstown being located at the headwaters of the Susquehanna River, or it might reflect the differing local experiences with flooding and flood control infrastructure.

Structure of the Coverage of the CBW

Although the frequency counts for keywords provided valuable information about media coverage, they do reveal how often the keywords occurred relative to one another or how those co-occurrences were patterned. Consequently, we conducted MDS analyses having two, three, or four dimensions for each location. In each case, we determined that the two-dimensional solution was most useful for our purposes. The *stress* and R^2 values were .06 and .96 respectively for Cooperstown, .19 and .77 for

Selinsgrove. and .20 and .73 for Havre de Grace. Although the stress values for Selinsgrove and Havre de Grace were poor by Kruskal and Wish's (1978) standard, we considered them adequate given the small number of objects in the matrix and the relatively modest number of articles in each location. The two-dimensional solutions were strongly favored in terms of ease of interpretation and the ability to compare results across locations. Thus, we retained the two-dimensional solutions.

Figure 2 displays the results for Cooperstown. To highlight the findings relevant to a watershed collective identity, we have drawn an oval around the focal concept *watershed* and its closest keywords. From this grouping of keywords, we can conclude that most articles on the CBW discuss *water quality*, *pollution*, and *nitrogen*. If we were to slightly expand the size of the oval, it would include *agriculture* and *phosphorus*. Hence, in Cooperstown, media discourse about the CBW is focused mainly on degraded water quality and the chemical pollutants that cause it.

It is informative to note the presence of another theme in *The Crier's* coverage, one which is defined by the cluster of terms at the far right of the figure. Their proximity to one another suggests a distinct set of articles that emphasize *crab*, *swimming*, and *photography* as well as *sediment* and *flooding*. A similar, though smaller cluster of keywords concerns fishing and hiking. While these concepts relate to the Bay, they are less likely to co-occur with *watershed* and, therefore, less likely to contribute to the collective identity that was the focus of our study.

In Selinsgrove (Figure 3), *watershed* is tightly clustered with *hiking*, *pollution*, *photography*, *water quality*, and *sediment*. This is an indication that coverage of the CBW consists of articles that consistently intermingle recreational concepts (*hiking* and *photography*) with water quality concepts (*pollution* and *sediment*). Curiously, other Bay-related recreational activities (i.e., *swimming* and *fishing*) are quite distant from *watershed*.

A second theme is defined by the cluster at the top of the figure, which contains *crab*, *bird*, and *swimming*. Another relevant theme on the left side of the figure documents the co-occurrence of articles that emphasize agriculture and nitrogen, perhaps based on its use as a fertilizer. As with Cooperstown, we see a set of articles that deal with Bay-related concepts, but do so without reference to the *watershed*.

Figure 4 shows that the Havre de Grace data present clusters that differ markedly from those in the previous two analyses. The terms *crab*, *sediment*, and *flooding* cluster tightly around *watershed*, thereby defining this set of terms as central to a collective watershed identity. A second cluster, which appears at the bottom of the figure is composed of *nitrogen*, *phosphorus*, *fishing*, and *photography*. These terms appear in articles that are less likely to include the term *watershed*.

Discussion

The motivation for this project evolved from a simple set of premises. Despite efforts to improve the health of the Chesapeake Bay, it remains in precarious condition. This is largely the product of human behavior that occurs *not* at the Bay, but throughout the vast watershed that feeds it. Hence, any possible

solution to the degradation of the Bay is likely to depend on residents' understanding that their collective actions will determine the fate of the Bay. Because previous theory and research point to media as a progenitor of identity, we sought to understand the extent to which local newspapers were contributing to awareness of the Bay and to a collective watershed identity. The results of our research revealed the general answer to be "Not much". But there is nuance to this result that deserves closer attention. We turn to those issues next.

Coverage of the Chesapeake Bay

A place-based identity is established when individuals experience a sense of connection with some location (Kavaratzis & Hatch, 2013). These locations might include a country, a park, a family home, or, in our case, a watershed. However, identity is necessarily premised on awareness of the place as a place. In other words, knowledge of the location and its boundaries are key to the development of an identity. Given that media, especially local media, are a common source of information about place, we looked first at media coverage of the Chesapeake Bay. We found clear evidence of Bay-related news stories, though by almost any standard, the frequency of that coverage was sparse. Across location, fewer than .05% of the articles mentioned the Bay. Thus, while it was possible that media coverage encourages awareness of the Bay, that possibility was dishearteningly small. Nonetheless, there were interesting variations by time and place.

In an explicit reference to temporal dynamics, Proshansky et al. (1983) asserted that "...place-identity will be modified over the course of the individual's life cycle" (p. 60). In line with this claim, our data showed patterns that were responsive to time and place. By plotting frequency of coverage over the time period of our investigation, we observed substantial year-to-year variation. Because our efforts to identify exogenous predictors of this variation were unsuccessful, we leave that task to future research. With respect to location, the results were clearer. Proximity to the Bay emerged as a strong predictor of coverage with Havre de Grace showing roughly twice the coverage of Selinsgrove, and Selinsgrove showing five times the coverage of Cooperstown. To the extent that "...identities are talked into existence" (Hunt & Bedford, 2004, p. 445), the quantity of that talk is tied to location.

Components and Structure of a CBW Identity

Identity theory also asserts that collective identities are composed of structured sets of concepts that jointly give meaning to the identity. Thus, our second set of research questions focused more tightly on the components and structure of a Chesapeake Bay *Watershed* identity. Following a review of Bay-related websites, we selected a sample of keywords to represent the universe of possible related concepts. After limiting the database to articles that contained *watershed*, we observed that, across locations, *pollution*, *water quality*, *fishing*, *agriculture*, and *flooding* were the most frequently mentioned terms. In our view, linking *pollution* and *water quality* to *watershed* is beneficial insofar as it reminds consumers of the problems the Bay is facing. Importantly, it also frames the problem in collective terms. Use of the term *watershed* references the entire 64,000 acres that comprise the CBW, not merely the residents of the Bay. Similarly, the frequent occurrence of *fishing*, *agriculture*, and *flooding* apply to the

watershed as a whole. As with coverage of the Bay, we suggest these findings might be seen as both a glass half full and a glass half empty. We found evidence of the potential for media coverage to encourage a sense of connection with the *watershed*, but the frequency with which these terms co-occurred was quite low. Moreover, even if coverage does exist, it is unclear whether people know that they live within the bounds of the CBW. Research can establish that baseline knowledge and consider what messages, especially if they are not being communicated through the media, can enhance knowledge and a collective identity as residents of the CBW.

Also, as with coverage of the Bay, we looked for variations due to time and place. In this case, there were insufficient data to carry out MDS analyses partitioned on both variables. Hence, we broke the dataset by place alone and conducted three separate analyses. These proved illuminating in two respects. First, we uncovered interesting differences in the components of a *watershed* identity as a function of place. For example, *pollution* and *water quality* were part of the focal cluster with *watershed* in Cooperstown and Selinsgrove, but not in Havre de Grace. Selinsgrove also encompassed *hiking*, *photography*, and *sediment*, whereas Havre de Grace was composed of only *sediment*, *flooding*, and *crab*. In short, the collective watershed identities that emerged from media coverage in different locations overlapped somewhat, but were unique to each place. The issues covered might become more serious, as compared to recreational, as proximity to the Bay increases.

The possible causes of these variations are numerous. Table 1, for example, shows differences across locations on a variety of sociodemographic indices. There is also reason to suspect that local environmental conditions can partially explain the manifestation of keyword groups. The “grades” issued by the University of Maryland Center for Environmental Science(n.d.) on a 100-point scale are relevant to this point (<https://www.umces.edu/>). For instance, the North Branch of the Susquehanna, where Cooperstown is located, scores much better than the West Branch of the Susquehanna (Selinsgrove) or the mouth (Havre de Grace) on nitrogen (North = 87 vs. South = 37) and on phosphorus (North = 69 vs. South 42). It seems plausible that, in general, environmental degradation receives more media coverage in the areas where it is most severe. However, as the MDS analyses show, these particular problems – nitrogen and phosphorus – are *not* covered in conjunction with the watershed in the lower Susquehanna municipalities. Regrettably then, they cannot contribute to a collective watershed identity in Selinsgrove and Havre de Grace despite the fact that these pollutants enter the waterway primarily from upstream sources (which might include Cooperstown).

Collective Identity and Place Branding

Although our analysis of media coverage cannot rule out the possibility that a collective watershed identity is alive and well in other communication channels, that possibility seems unlikely. For that reason, we should consider more proactive means by which a watershed identity might come into existence. The literature on place branding, that is, the conscious effort to promote awareness of and attachment to a place, provides some helpful suggestions (cf., Kavaratzis & Hatch, 2013). A recurring theme in this body of inquiry is an emphasis on human interaction. For example, work on sense of place

among Chatham Islanders (a part of New Zealand) finds four components to the brand: Rights, roles, responsibilities, and relationships – each of which highlights one aspect of human connectedness (Aitken & Campelo, 2011). Similarly, Insch and Florek (2010) underscore the notion that social interaction is the binding agent between people and places. So, in addition to making CBW residents aware of their shared geographic membership – a precondition of collective identity – how might social bonds be developed?

Research on the contact hypothesis provides several answers (Harwood et al., 2016). For one, the contact hypothesis itself suggests that communication between group members leads to enhanced cooperation. This effect is seen most powerfully when certain conditions are met: participants are of equal status, the situation calls for cooperation, development of close relationships is possible, and institutional support is present (Allport, 1954). These specifics aside, there is compelling evidence that contact alone can create a superordinate identity (Harwood et al., 2016), which is precisely what is needed to encourage collective action in the CBW. The contact hypothesis has been supported using several different channels of computer-mediated communication and in discussions about fairly severe or contentious issues (Cao & Lin, 2007; Walther et al., 2015). These findings provide hope that modern communication channels can help to establish a common, superordinate identity.

Conclusion

There appear to be meaningful divergences in the collective identities of the three towns that are reflective of their differing demographic and environmental characteristics. Proximity to the Bay may explain some of these differences, but as a whole the CBW is a complex heterogeneous landscape of fragmented people and places. The news media can function to influence the public and policy agendas and are at the same time influenced by them. Media accounts that include language that creates awareness of issues, challenges, policies or opportunities for communities within the CBW can serve to provide insight toward how communities might perceive themselves, or be unaware, of their geographic location within a watershed. As the social scientist Bernard Cohen (1960, p. 165) wrote: “[The press] may not be successful much of the time in telling people what to think, but it is stunningly successful in telling most people what to think about.”

Our results indicated that the potential for formation of a collective watershed identity has been unevenly aided by local media coverage and only to a small degree in an absolute sense. However, our data, and therefore our ability to generalize, were limited along three dimensions. First, our sample of media messages was based on only eight years of data. Because frequencies were low, our ability to discern patterns over time was inhibited. Second, we sampled from only three newspapers. Although they were chosen to capture geographic variation across the watershed, a larger number of locations would have been desirable. Finally, we gathered data only from local newspapers. While these traditional media have the potential to influence collective identity, a more comprehensive understanding of watershed identity would require data drawn from social media and face-to-face interpersonal interactions. We hope that future research is able to address these qualifications.

We conclude this: To the extent that the well-being of the Chesapeake Bay hinges on a collective watershed identity, our results suggest that it is unlikely to develop organically. Hence, creation of a watershed identity will need to be planful and proactive.

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Figures

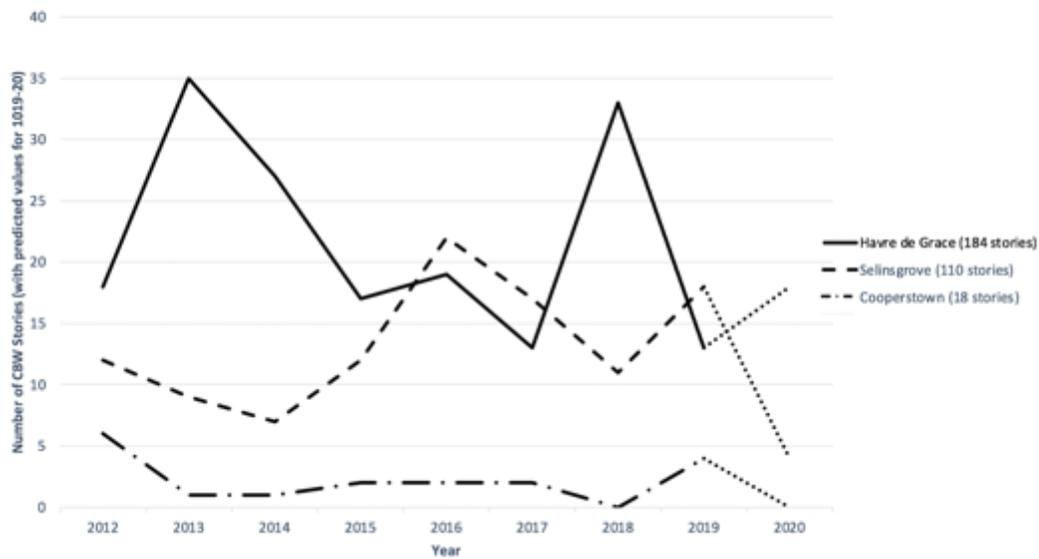


Figure 1

Newspaper Coverage of the CBW by Time and Location: Raw Counts of Story Frequency

Note. Because the database covered only the first half of 2019, the observed count was doubled in the figure to provide a prediction for the full year. The dotted lines for 2019-20 reflect these estimates. Numerical values in the legend are based on observed data only.

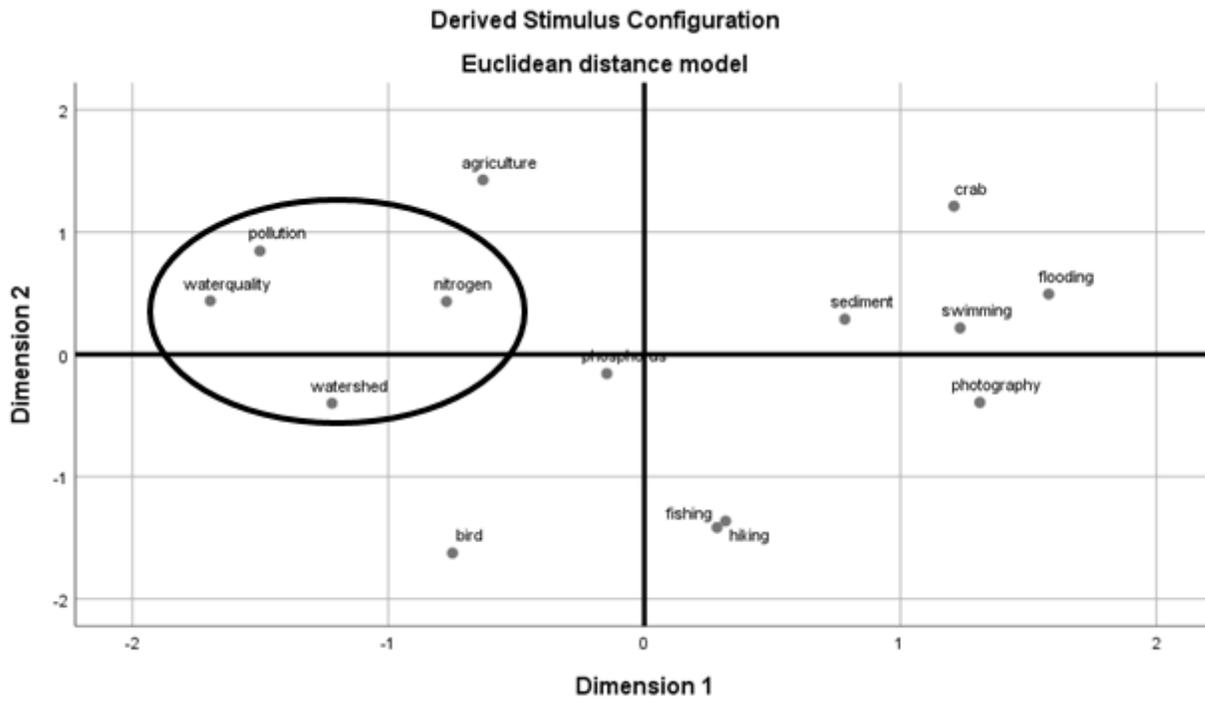


Figure 2

Multidimensional Scaling of Keywords for Cooperstown

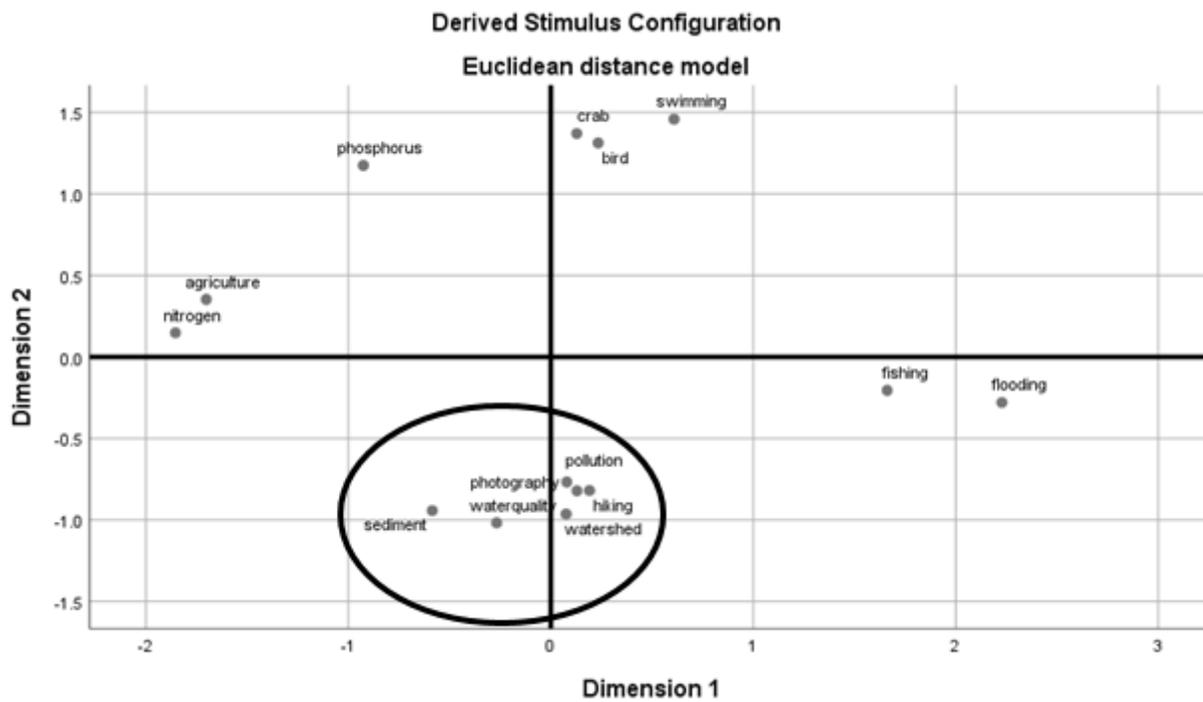


Figure 3

Multidimensional Scaling of Keywords for Selinsgrove

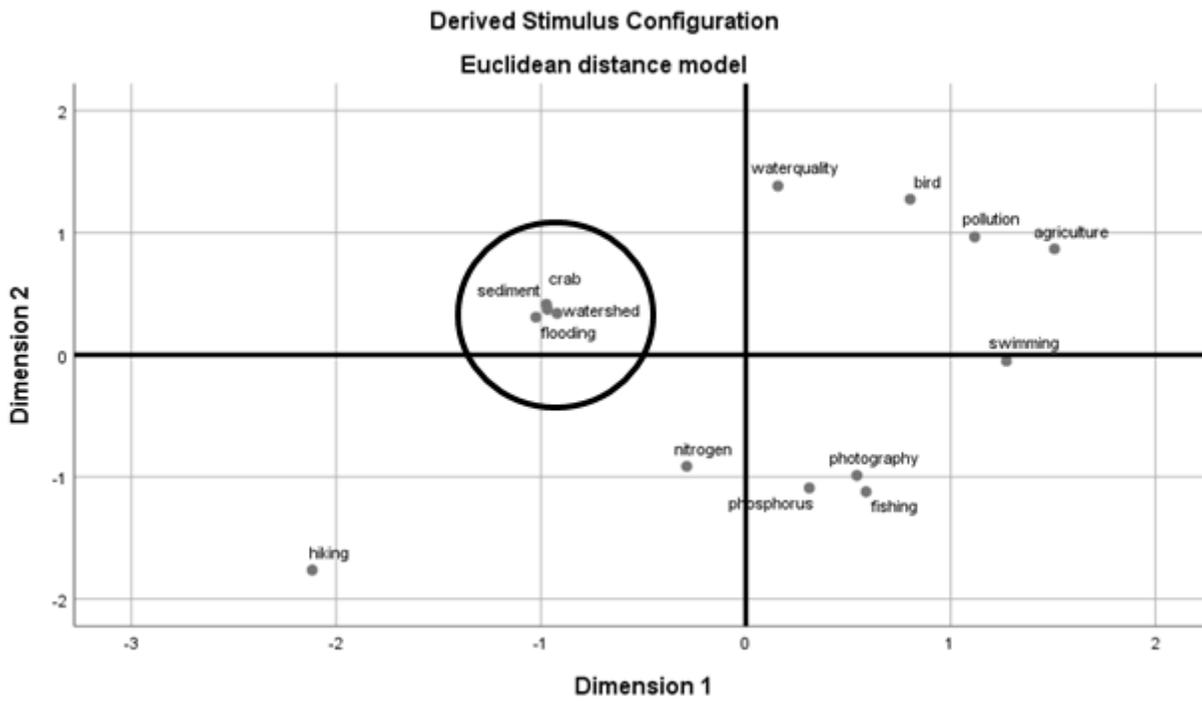


Figure 4

Multidimensional Scaling of Keywords for Havre de Grace