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Barton, C.C., 2016. Longshore Sediment Transport
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Authors: van Gaalen, Joseph F., Tebbens, Sarah F., and Barton,
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REPLY



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Joseph F. van Gaalen[†], Sarah F. Tebbens^{‡*}, and Christopher C. Barton[§]

[†]Florida SouthWestern State College
Ft. Myers, FL 33919, U.S.A.

[‡]Department of Physics
Wright State University
Dayton, OH 45435, U.S.A.

[§]Department of Earth and Environmental Sciences
Wright State University
Dayton, OH 45435, U.S.A.

We thank Kelley and Fitzgerald for their interest in our compilation paper (van Gaalen, Tebbens, and Barton, 2016). We regret that we missed the most recent studies related to the approximately 16-km section of coast of Saco Bay where we plotted a direction for sediment transport that is incorrect. We may have missed other studies along the approximately 4000-km of coast in our compilation, especially smaller scale features. To our knowledge, this is the first compilation of the direction and magnitude of sediment transport for the U.S. Atlantic and a small portion of the Gulf of Mexico coasts. Including erroneous information was not our intention. Extensive effort was made to be accurate and inclusive.

It is clear in Kelley and Brothers (2009) that Kelley and others have a history of unsatisfactory interactions with the U.S. Army Corps of Engineers (USACE) concerning Saco Bay. However, that does not justify the broad-brush criticism of our paper or all of the studies performed by the USACE. Kelley and Fitzgerald state they are “skeptical” of our work for locations with which they are “not familiar.” This is an unjustifiable statement. Kelley and Fitzgerald also criticize the lack of inclusion of their work on the “northernmost beach in the United States” (Kelley, Belknap, and Walsh, 2015). This book chapter was published after our article was submitted to JCR and months after we completed our literature search, and therefore was not included. Additional papers in the future will likely also change the magnitudes and directions of transport reported.

Kelley and Fitzgerald question our choice of references. They suggest we should have consulted “some of the existing books that describe regions of the United States in detail.” We did include the regional resources *Geology of Holocene Barrier Island Systems* by Skip Davis (1994) and *Beach Processes and Sedimentation* by Komar (1998). Kelley and Fitzgerald state we would have been “wise to consult with local experts or some

of the existing books ... like Orrin Pilkey’s *Living with the Shore* series,” such as the Maine volume (Kelley, Kelley, and Pilkey, 1989). Our paper is a compilation of the published literature; contacting local researchers was beyond the scope of our paper. Pilkey’s series, while valuable, does not present the direction and magnitude of sediment transport. For present day Saco Bay, the Maine volume (Kelley, Kelley, and Pilkey, 1989) states “it is suspected by most geologists that the sand traveled north along the beach.” There is no in-text reference and there is no mention of present day sediment transport magnitudes. A “suspected” transport direction does not meet the research threshold for inclusion in our compilation. Finally, Kelley and Fitzgerald suggest we should have included a reference to Fisher (1968). This reference is to a research abstract for the 1967 Annual Geological Society of America meeting and does not mention sediment transport magnitudes or directions.

Kelley and Fitzgerald question the use of USACE work and favor journal articles. A considerable effort was made in this compilation to go to original sources which are often USACE reports. Many research journal articles and books reference the USACE reports, including Kelley, Kelley, and Pilkey (1989). Indeed, Kelley, Kelley, and Pilkey (1989) reference Szuwalski and Wagner (1984) and Peck (1985a,b), which are themselves compilations of publications by the USACE and include our same USACE references.

In most regions, we cite a combination of reports and journal articles. Examples include: the Carolina coast, which cited FitzGerald, Fico, and Hayes (1979) from an American Society of Civil Engineers (ASCE) publication along with the research paper of Ashton, Murray, and Arnoult (2001); the Virginia coast which cited a Coastal Engineering Research Center (CERC) report (Anders and Hansen, 1990) and the journal article of Belknap and Kraft (1985); the Outer Banks which cited a technical report (Langfelder, Stafford, and Amein, 1968) and the journal article of Fenster and Dolan (1993); and New Jersey which cited a technical memorandum (Fairchild, 1966) and the research papers of Psuty (1983) and Ashley, Halsey, and Buteux (1986).

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*Corresponding author: sarah.tebbens@wright.edu

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USACE reports have a reputation among some academics that they are not peer reviewed. This is not correct. The current policy of the USACE is for all reports to undergo external and internal review before publication. From 1902 to 1992, per the Navigation and Navigable Waters Act of 1902, an independent USACE Board of Rivers and Harbors composed of seven engineer officers was responsible for reviewing USACE reports and projects. The Beach Erosion Board was then folded into the Board of Rivers and Harbors in 1963, per the amended Navigation and Navigable Waters Act of 1962. The USACE reports used in our compilation (1947–92) were reviewed by engineers independent of the projects. The Water Resources Development Act of 1992 replaced the Board with an external peer review process.

While every effort was made to make this compilation complete and accurate, there are likely additional studies that we missed that would enhance the work. We welcome feedback from researchers who find sites where the compilation is missing supporting or contradictory work. JCR is open to publishing an addendum to include revisions.

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