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## Augmented Maritime Histories: Text, Point, Line



*Bullock Harbour, Co. Dublin, Ireland [LiDAR scan data 2016]*

The coastline of Ireland has been embellished through the accretion of piers, jetties, quays and breakwaters to facilitate the ever-evolving nature of the shipping and fishing industries in the past millennium. These structures represent a significant infrastructural system that has shaped local and national Irish culture for centuries. While Ireland's major ports have been carefully documented and researched, much of this infrastructure, though once intrinsic to the economic wealth and welfare of local communities, has fallen into disrepair as the industries that once generated their development have been centralized to the major ports. With damage from the seas ever increasing, it has become critical to document these minor harbour structures to describe and elaborate the entwined nature of their development with the communities they had once served.

The current project was conceived and funded as a pilot project to establish protocols for the capture and management of LiDAR-based surveys of these coastal structures in tandem with historic research on their development. Many of these structures have long, complex histories tied to the shifting patterns of governance, land tenure, material resources, technology and trade. Unraveling and visualizing these histories involves a complex negotiation between text-based archival documents, historic surveys and maps, other forms of pictorial representation from various periods such as paintings, all used in tandem with LiDAR-based surveys to articulate their evolution.



*Bullock Harbour, Co. Dublin [Frances Place, 1699]  
with perspectival grid overlaid based on survey by  
Captain Bligh 1800.*

In the two harbours surveyed to date, Coliemore and Bullock in County Dublin, a protocol has emerged to enable the visualization of the evolution of each harbour to their current state. Early pictorial representations, a nineteenth-century sketch in the case of Coliemore and an early seventeenth-century topographical ink-wash of Bullock [Frances Place, NGI 7532], are used as baselines to articulate the original

geomorphological characteristics of each site prior to its embellishment with infrastructure. Perspectival grid analysis is undertaken on these images, using Adobe Photoshop, and dimensionally verified against textual evidence from early coasting pilots and/or marine surveys. Once transferred to RhinoCAD, the data-points from these perspectival grids act as a frame into which topographical data, extracted from the LiDAR [see below], is merged in addition to underwater sonar cloud data where available. From this data the original geomorphological condition can to hypothetically modelled as a three-dimensional representation to act as a base for further imaging.



*Bullock Harbour, Co. Dublin, Ireland [LiDAR scan data, 'Old Bullock' rocks highlighted, 2016]*

The LiDAR data, once interrogated relative to archival information, can be partitioned by date of construction from which a series of three-dimensional models of subsequent building phases can be visualized and linked as a web-based record. The partitioning of the scan data in this manner requires a certain amount of interpretation and interpolation to articulate how each phase was constructed and later embellished. Future plans for enabling more accurate interpretations will involve the use of ground penetrating radar to obtain profiles of the internal construction of the built elements as well as of the seabed.