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English Summary

The present study, *Liquid Footprints: Water, Urbanism, and Sustainability in Roman Ostia*, explores the role of water in the ancient Roman city of Ostia. Ostia lies ca. 20 km west of Rome, separated by Rome by a chain of inland salt-marshes. In antiquity, Ostia was situated at the intersection of the Tiber River and the Mediterranean Sea, and acted as one of the harbour cities of Rome for several centuries. This city existed for nearly 1000 years, from the late 4th-early 3rd century B.C. until the 6th-7th century AD. After nearly 150 years of archaeological, epigraphic, and geophysical work, a wealth of data has been collected about Ostia's relationship with Rome and the wider Mediterranean world, as well as about Ostia's specific character. The city was divided into five regions in antiquity, and there is an incredible diversity of structures here, from religious buildings to multi-floor apartment buildings, grain storehouses, private homes, bath buildings, and bars.

With such a diversity of buildings and requirements, a city with an estimated population of ca. 40-50,000 would have needed a large quantity of water. This study investigates how water was acquired, used, and drained away in Ostia, and how these systems changed over time. To achieve a high level of resolution, three city blocks (*insulae*), were selected as case studies: III, i; IV, ii; and V, ii. For each of these city blocks, the author carried out systematic fieldwork of the standing remains and relevant archival sources to identify any and all traces of water supply, usage, and drainage. This created a detailed hydraulic biographies for individual buildings, as well as entire city blocks: the development, diversification, and alteration of the blocks' water systems could be mapped out over their entire life.

However, to contextualize these hydraulic systems, the present study developed a new methodology, the Roman Water Footprint. The method was inspired by 21st century ways of understanding how and why water is used in modern cities. These modern insights have indicated that sustainable water usage is based not only on advanced hydraulic technology, but also includes environmental factors, and a strong cultural factor. The latter is in fact the most important, as it tells us *why* we use water as we do. The Roman Water Footprint took these three pillars of sustainable water usage (technology, environment, and culture), and modified them to handle data from an ancient Roman city. By using the Roman Water Footprint, this study incorporated the archaeological evidence of water usage in Ostia with paleo-environmental data, and with Roman cultural practices of using water. In this way, the water systems could be contextualized into their broader environmental and cultural milieu. Additionally, changes to the hydraulic context of Ostia could be modelled over time.

The results of the study indicate that Roman water usage was much more diverse and flexible than has been previously appreciated. Multiple types of water were used within individual buildings, each with their own dedicated physical systems. Also in terms of drainage, this study developed an initial chronology for the development and distribution of the sewer system of Ostia. The main outcome of the Roman Water Footprint methodology indicated that the hydraulic system changed over time together with changing socio-cultural values and requirements of Ostia.

By placing Roman water systems into dialogue with the contextualized methodology used in modern sustainable water research, this study forms an initial bridge between modern and ancient approaches to water and urbanism.