

# Modeling for Umm el-Jimal and The Long Term Reuse Project of the Ancient Reservoirs

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**Abstract:** A team of engineering students advised by Professor Hoeksema embarked on a new water project in Umm el-Jimal, Jordan under the partnership of the Clean Water Institute and Umm el-Jimal Project. Data collection and land surveying were the main objectives for this summer internship. Research on adaptive water reuse and computer models was done throughout the 10-week internship. Watershed characterization was done using GIS and a hydraulic model was created using the computer program SWMM. Model input and validation data was collected via land surveying and interactions with residents. A water survey was also created and water quality testing was set up with the Al al-Bayt University.

## Overall Goal of the Water Project:

The overarching goal for the water project is the adaptive reuse of the ancient Roman reservoirs in the ruins of Umm el-Jimal. This will provide an additional source of water to the village in a very arid land. A challenging twist to the goal is to preserve the archeological integrity of the reservoirs while maximizing its benefits for the community of Umm el-Jimal.

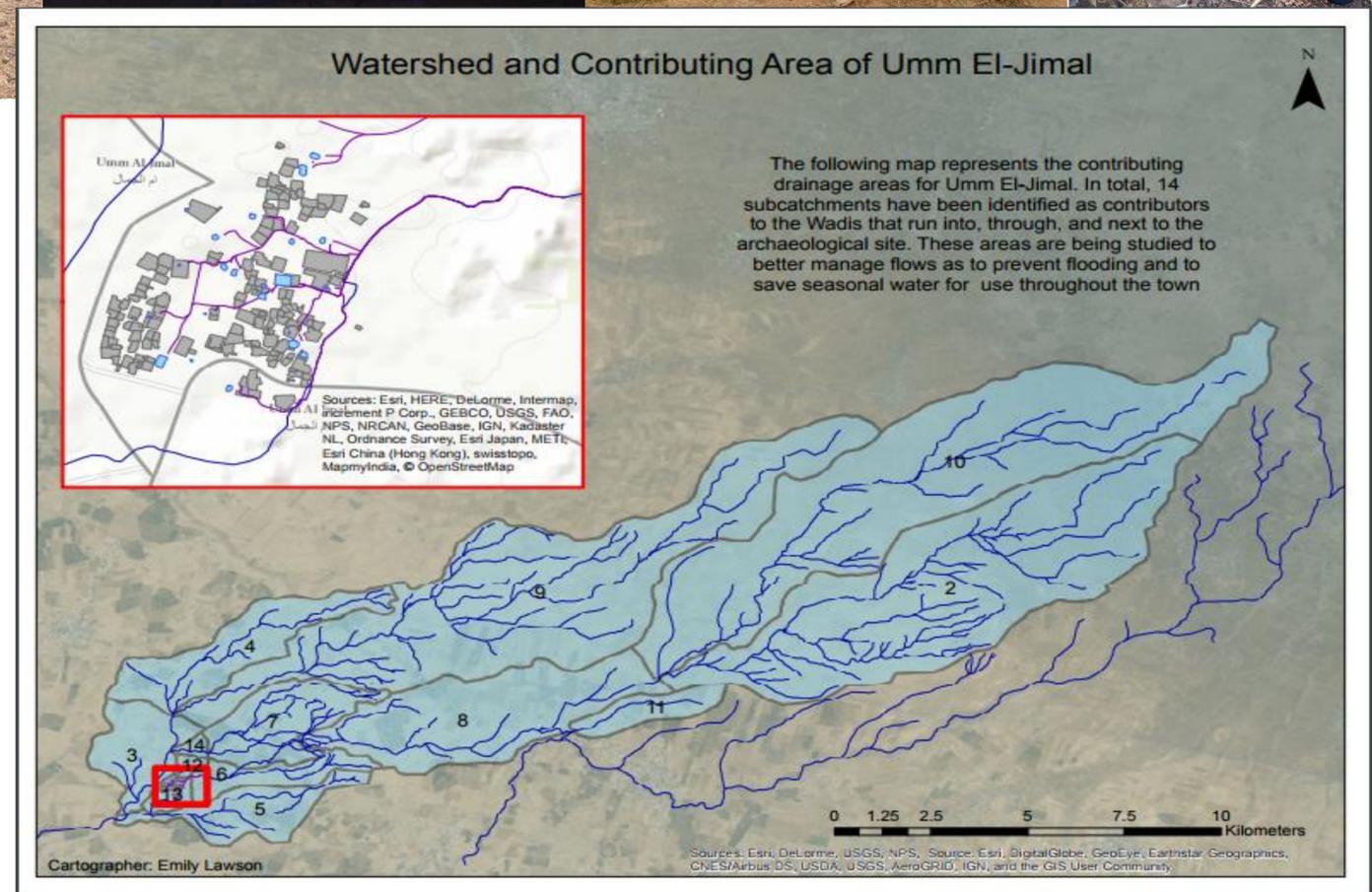


## Goals for the 2017 summer internship:

Collecting data and creating hydrologic and hydraulic models of the Umm el-Jimal water project.

## Completed objectives for the 10-week summer internships:

- Land Surveying, multiple cross-sections and GPS points taken.
- Watershed characterization using GIS (Geographic Information System)
- Creating a hydrologic and hydraulic model of the Umm el-Jimal area using SWMM (Storm Water Management Model)
- Drafting of the Water Survey
- Fostering a partnership with the local university for water quality testing
- Compiling a comprehensive bibliography of resources that would contribute to the overall goal of the larger project.



**Acknowledgments:** Much thanks to Professor Bert de Vries of the Umm el-Jimal Project and Professor David Wunder of the Clean Water Institute for creating a partnership for the betterment of the wellbeing of the community of Umm el-Jimal and to Professor Robert Hoeksema for overseeing the Water Project and supervising the engineering students Emily Lawson, Peter Wagonmaker and Jiyoung Kim on the 10 week internship that begins the project.