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Identifying the Ordinary High Water Mark Through the Use of UAVs

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Research + Scholarship SYMPOSIUM



Identifying the Ordinary High Water Mark Through the Use of UAVs

The accurate determination of the Ordinary High Water Mark (OHWM) on streams and shorelines has taken on an increased importance since the recent redefinition of “Waters of the United States” by the U.S EPA. The redefinition has increased the amount of land and water over which the federal government has jurisdiction. The OHWM helps define the limits of those jurisdictional waters. Accurate, consistent, and efficient OHWM delineation practices are thus essential to proper and effective implementation of these laws and regulations by the U.S. Army Corps of Engineers Regulatory Program and other agencies.

Through this research it is shown that using unmanned aerial vehicles (UAVs) to capture aerial photography can be helpful in the identification of the OHWM where accessibility, safety, and/or cost might make normal delineation techniques prohibitive. For this research a quadcopter UAV was flown for the purpose of taking aerial photographs of the banks of streams in southwest Ohio. The photos were then used to see if the natural indicators of the OHWM were apparent. At many of the streams photographs were easy to collect in a timely manner. Natural indicators such as change in vegetation and soil were present. However due to restrictive conditions at some streams such as overgrown grasses and trees, the OHWM was difficult to discern.

The verification of the adequacy and accuracy of the OHWM identification, based on the photographs and videos at the studied streams, was handled by wading into the streams or climbing down over the streambanks and inserting colored flags along the line that defined the OHWM. These flags were identifiable in the UAV images and thus allowed for an assessment of the usefulness of such images for defining the OHWM. In locations where UAV’s can be flown, any party who is interested in making a quick and efficient determination of the Ordinary High Water Mark should consider the use of UAVs.