

# Remote Operations - Surveyor Impact and Opportunities

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**Key words:** Education; Hydrography; Low cost technology; Remote sensing; Risk management; autonomy; bathymetry; training

## **SUMMARY**

The recent proliferation of advanced uncrewed vehicles for ocean data collection is changing the roles of the hydrographic surveyor, marine technician, and technology provider. It is expected that the use of uncrewed vehicles to conduct ocean survey, collect environmental information, patrol marine protected areas, and provide port and harbor security functions will continue to increase. Recent developments to push the technological limits of these uncrewed systems indicate that training for surveyors and technicians will need to change to support remote operations. In addition, technology providers are being asked to build systems that are smaller, use less power, and can be run remotely or fully autonomously. Current data collection systems are very dependent on human interaction, requiring significant changes to hardware and software or implementation of high bandwidth communications-both of which are very expensive. However, remote operations offer benefits to the industry that will increase productivity and provide more opportunities for professional growth.

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Remote Operations - Surveyor Impact and Opportunities (11221)  
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FIG e-Working Week 2021  
Smart Surveyors for Land and Water Management - Challenges in a New Reality  
Virtually in the Netherlands, 21–25 June 2021