

WATER RESOURCES

Client

Segura Hydrographic Confederation

Challenge

Obtaining digital models for cost optimization

Knowing the exact capacity of the dams

Utilizing a methodology that enables a frequent implementation of analyses

Benefits

Higher precision of data

Optimization of resources, time, and costs

Realistic and precise management of water resources

Applied Technology

ArcGIS® Desktop
Drone2Map™ for ArcGIS

Bathymetry Update with Drone2Map™ for ArcGIS®

Spain's Segura Hydrographic Confederation (CHS) is responsible for the administration and control of state-owned water resources as well as the creation, monitoring, and review of the basin water plan. CHS is part of the country's Ministry of Agriculture and Fisheries, Food and Environment.

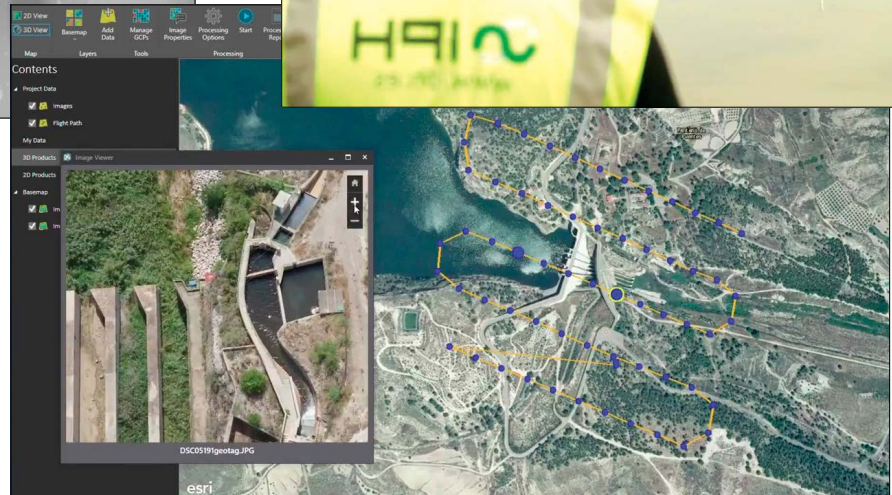
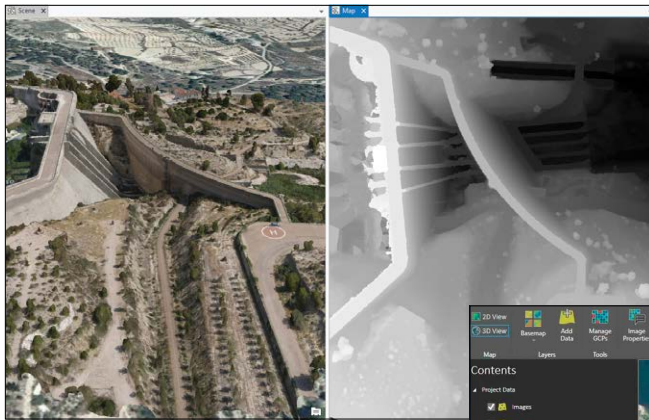
Challenge

To optimize water use in the Murcia region of Spain, CHS needed precise information about the amount of water collected in dams and the thickness of sediments. Using traditional methods, it was not economically feasible for CHS to collect and analyze the data it needed. The organization faced three challenges:

- Obtaining a digital elevation model of the dam quickly and inexpensively
- Knowing the erosion of the basin, the volume of deposited solid sediments, and the loss of capacity
- Maintaining quality asset data related to the dam, property, and infrastructure

Solution

CHS worked with Instituto Murciano de Investigación y Desarrollo Agrario y Alimentario (IMIDA) to quickly resolve its challenges. The project they created aimed to collect the data at a lower cost and more frequently. They also developed an inventory of the CHS endowment to promote infrastructure conservation.



“We spent almost 20 years without knowing the dam’s exact water volume because carrying out precise bathymetry and photogrammetry with traditional methods is quite expensive. This new method is between 5 and 10 times less costly, allowing us to perform these analyses more frequently.”

José María Bernabé
 General Secretary
 Segura Hydrographic Confederation

The result was an international pioneer project that used drones to obtain a digital elevation model of the seven dams in Murcia. To ensure thorough analysis, CHS and IMIDA used two air drones, one underwater drone, and one bathymetric drone.

The team processed data collected with Drone2Map for ArcGIS, an innovative app that integrates geographic information system (GIS) technology with the company’s Teledetection systems. In just a few hours, Drone2Map transformed the information gathered by the drones into a final, ready-to-use product. In near real time, CHS was able to use accurate data for analysis and decision-making.

Benefits

Drone2Map guaranteed that CHS could complete its analysis quickly and at a much lower cost. CHS can optimize this new resource by frequently gathering data and performing analysis as needed. In this way, the organization can guarantee that it maintains quality dam data and ensures decision-making based on realistic information.

The use of drones has allowed CHS to generate elevation models with a precision of up to five centimeters with air drones and of one centimeter with bathymetric analyses—a level of precision that was previously unthinkable.

Drone2Map for ArcGIS sped up image processing tasks, driving a smoother flow of work and information because of the app’s complete integration with the ArcGIS platform.



Learn more at esri.com/drone2map.