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Handout

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**DRONE HYDRO-TECHNOLOGY IMPACT ON WATER MANAGEMENT
and
EDUCATION AND TRAINING OPPORTUNITIES**

Erik B. Schultz and Lee P. Gary, Jr. *

OVERVIEW

The advancement and sustainability of emerging drone hydro-technology is having a transformative influence on diverse industries – and the water sector is not an exception. It is a given in the water industry that water conservation is essential for future sustainability. Drones or Unmanned Aerial Vehicles (UAVs) have an expanding and beneficial role to play with the success of water management, especially enhancing the sustainability of water. In parallel, drone technology can be a catalyst that spawns entrepreneurship in a community and promotes new education and training opportunities for job and career development.

INTRODUCTION

Traditional methods of cleaning, such as pressure washing, consume vast quantities of clean water – and generate voluminous amounts of wastewater, plus the potential pollution of vulnerable ground and surface water sources. Nearby water reservoirs and lagoons are not exempt from the runoff of cleaning wastewater, which can contain various chemical agents. Overall, the use of drone sprayers, like the *Agras T-40*, *Lucid Bots*, and *Apellix Drone*, can lower water usage, reduce the production of wastewater, while minimizing runoff vectors. The respective cleaning applications of hydro-drones, including consumption characteristics and favorable operational performance, are acknowledged as pacesetter. Drones are also generating considerable excitement, plus discourse and discernment, within higher education and among public agencies and private companies seeking more “green tech” applications.

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ADVANTAGES

Today's emerging hydro-drone sprayers are highly efficient and equally precise at applying cleaning solutions to exterior and interior surfaces, achieving spraying levels with accuracy unattainable using conventional equipment. By adopting drone hydro-technology, facility managers can gain significant savings in water usage – while minimizing the threat of water scarcity and avoiding associated pollution vectors generated by wastewater. The unique features and reliability of hydro-drones have migrated to the public utility, energy, and petrochemical industries, each with vast and essential infrastructure to monitor and to keep clean. Medical facilities and universities have also incorporated drone cleaning into their maintenance programs, capitalizing on cost savings and enhanced worker safety.

BACKGROUND

Drones offer practical solutions to everyday challenges in the water industry: aiding inspections, surveillance, monitoring, digital imaging, discharge testing, and odor detection. They have the potential to significantly reduce hazardous work exposure, minimize on-site work accidents, and enhance the efficiency of data collection (*Sources: Hammer Missions, Fly Guys, Eltel Networks*). Drones present unique opportunities to bolster the “green energy” sector emerging in the water industry, supporting sustainability efforts with aerial inspection of renewable energy facilities and operating equipment, also site safety (*Source: Consortiq*). Recent advancements have seen hydro-drones harness wind power for self-fueling, signaling promising advantages for renewable energy markets (*Source: Bioenergy Consult*). Moreover, drones offer enhanced surveillance over public and private water sources and storage areas, including reservoirs and infrastructure, allowing for quick threat and hazard identification and timely damage control if necessary for public safety (*Source: Fixar Pro*).

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CHALLENGES

Realizing the full potential of drone technology calls for a concerted effort to create and to promote drone education and training programs. It is opportunistic to teach and equip potential workers with the necessary skills to operate and maintain drones (UAVs) properly. Accessible and diverse drone education and training, provided by public and private sources, are invaluable to ensure well-prepared personnel for safe and secure drone operations, while contributing to the local economy by creating new or expanded employment opportunities and inviting career paths. Lessons learned from the successful application of drone hydro-technology equipment can be adapted and used to develop appropriate new courses for trade organizations, professional associations, and higher education. Incorporated into such courses could be an exposure to legal and regulatory compliance for drones, including requirements for drafting a drone flight plan, as regulated by the Federal Aviation Administration (FAA).

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DRONE SPRAYERS

Agras T-40 – <https://www.google.com/search?client=firefox-b-1-d&q=AGRAS+T-40+>
Lucid Bots – <https://lucidbots.com/blog/tag/cleaning-drone>
Apellix Drones – <https://www.apellix.com/power-wash-drone>

SOURCES: EQUIPMENT and SERVICES

BioEnergy Consult – <https://www.bioenergyconsult.com>
Consortiq – <https://consortiq.com>
Eltel Networks – <https://ethelnetworks.com>
Fixar Pro – <https://fixar.com>
Fly Guys – <https://flyguys.com>
Hammer Missions – Team@hammermissions.com

RESOURCE

*Revolutionizing Exterior Cleaning
and Agricultural Industries Through Drone Hydro-Technology.*
Erik B. Schultz and Lee P. Gary, Jr.
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Louisiana State University, Baton Rouge, Louisiana
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TRANSPARENCY

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