

Hydrodynamic Analysis and Propulsion Design for UVs

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WHOI CMR Entrepreneur Forum Flash Talk, 26 August 2020

HYDROCOMP IN THE UV SPACE

- Design tools
 - Systems engineering: NavCad®
 - Propulsor design: PropElements®
- Engineering services
 - Hydrodynamic analysis
 - Propulsor design; open, ducted, rim-drive
 - Modeling of *Vehicle-Propulsor-Drive* energy requirements



FOCUS: TOOLS FOR UV DESIGNERS

- New UV-specific development
 - UV body drag prediction and *Vehicle-Propulsor* interaction
 - Electric motors as a driveline option; PMSM
 - Partial load model for accurate duty profile energy budget
 - Integration with CFD tools
- **What is needed for your design objectives?**
 - UV body design wizard? Total mission energy usage?

CONTACT & RESOURCES FOR THE UV COMMUNITY

- Educational outreach: hydrodynamics, propulsion
- UV-specific articles at www.hydrocompinc.com
 - *Contemporary UUV Propulsor Design*
 - *Electric Motor Selection for Underwater Vehicles*
 - *Introduction to Thruster Design for Submersible Developers*
- **Contact me at:** donald.macpherson@hydrocompinc.com