Speed/Power Analysis with Orca3D Webinar FAQ

Q: For the Savitsky analysis, you choose one side of the hull. For Holtrop analysis, you choose both sides?
A: As with the Savitsky/Planing analysis, you should only select one side of the hull (this was demonstrated incorrectly during the webinar).

Q: How can I draw hydrodynamic profiles for a propeller with Rhino?
A: A geometrically correct propeller is quite complicated, and requires a propeller-specific design program, such as PropCad, which can export a Rhino macro for the particular design. If you are looking for a representative propeller shape, however, HydroComp's speed/power software tools have a new utility to export a "propeller CAD shape". (This was just introduced for the 2009 versions of the software.)

Q: What if you use a jet drive system for a Planing Analysis?
A: This is easy to set up, since the propulsion component is defined just by a shaft line vector and a propulsive efficiency. The technical brochure for the waterjet model should identify the thrust line position at the transom and the shaft angle (frequently 5 degrees). The propulsive efficiency might be a bit trickier, since waterjet manufacturers do not show propulsor efficiency in their technical literature. If you have not yet selected a waterjet model, then it is reasonable to assume that you will eventually install one that is optimized for your speed range, and a value of 0.60 is reasonable. For a particular waterjet model, however, you would need to figure out the real propulsion efficiency, which requires you to convert the technical data into performance coefficients. Let me refer you to two technical papers from the Knowledge Library page on the HydroComp web site (www.hydrocompinc.com/knowledge/library.htm) - 1) MacPherson, D.M., "Selection of Commercial Waterjets: New Performance Coefficients Point the Way", SNAME New England Section, Feb 2000, and 2) MacPherson, D.M., "Case Study: Application of NavCad to the Design and Optimization of a Waterjet-Driven Patrol Boat", HydroComp Report, Nov 2002.

Q: Is the calculated trim change or total trim including static trim which is the beginning position?
A: Let me refer you to an article posted on the NavCad Knowledge site about this topic. Click to http://navcadknowledge.wordpress.com/2008/11/04/savitsky-dynamic-trim/.

Q: Can you include tunnels in the planing analysis?
A: On the resistance side the tunnel effect is incorporated in a "global" sense through the computation of an "effective" deadrise angle. However, perhaps the more significant effect relates to the propulsive efficiency which is a user input, and we do not compute it directly.

Q: Also can you add tab areas in the planing analysis?
A: Not directly, although if you had an idea of what resultant trim angle the tabs would allow you to achieve, you could move the LCG fore and aft until the desired trim was achieved (assuming the tabs could cause that effect). However, this would not account for the induced drag of the trim tabs.

Q: How can we use these tools for both displacement as well as planing sailboats?
A: Neither of these methods are suitable for displacement or planing sailboats. We are considering adding a method for displacement sailboats in a future release. This would cover upright, 0 yaw resistance, not a Velocity Prediction Program.