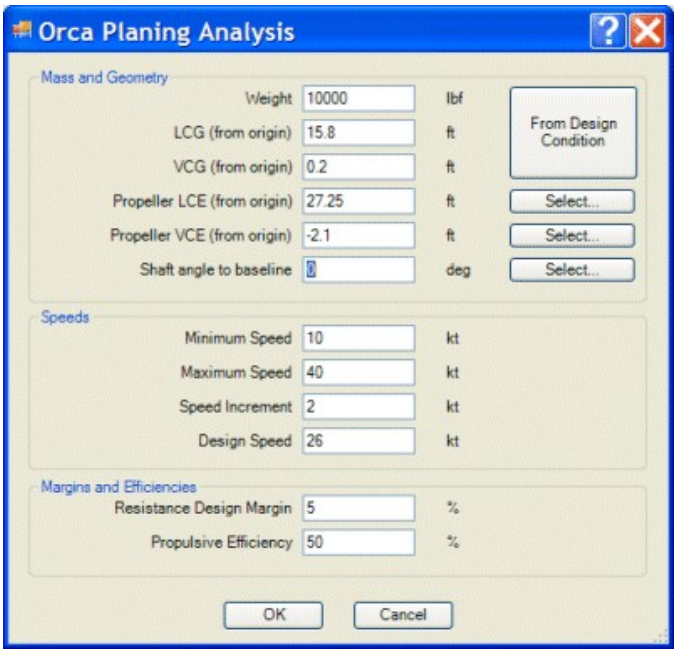
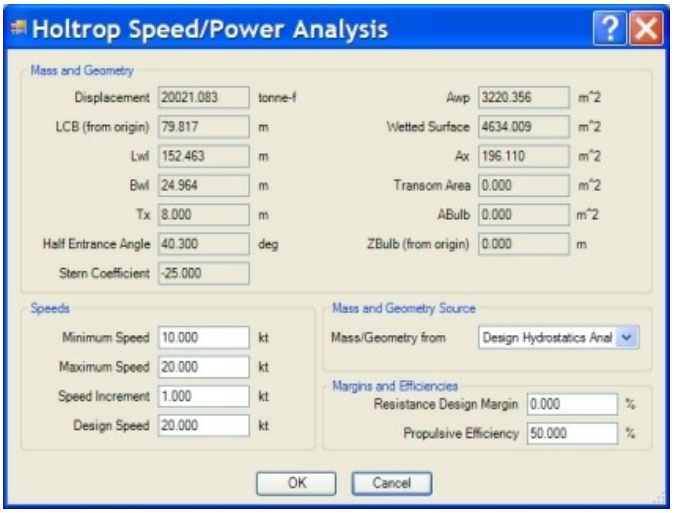
A Plug-in for Rhinoceros®

Orca3D
Speed/Power Analysis

"How fast will it go?" The Orca3D Speed/Power Analysis module has two different prediction methods: the Savitsky method to predict the speed/power curve for chine hulls, and the Holtrop method to predict the speed/power for displacement hulls. We have integrated the HydroComp Drag Prediction Library, to ensure reliable, accurate results.





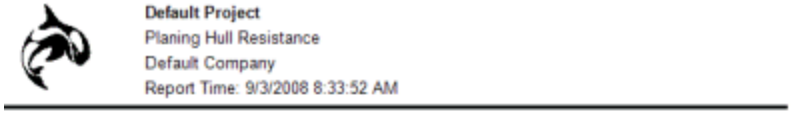
Most of the required input parameters are automatically computed from your model, although the user can input or override the values. Results are quickly generated and professionally formatted, and include checks to ensure the validity of the results. Any parameters that are outside of the ranges of the prediction method are flagged.

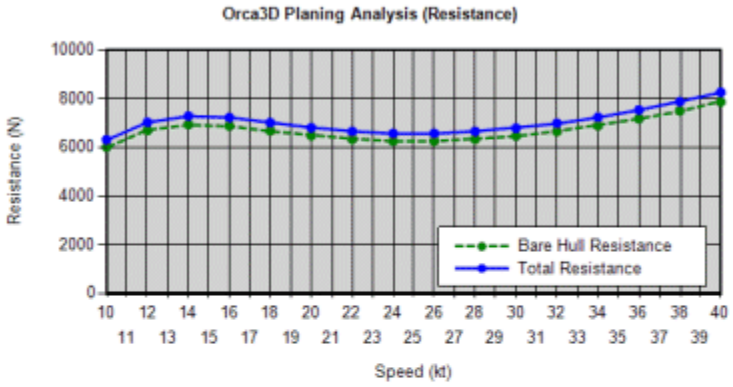
Default Project
Planing Hull Resistance
Default Company
Report Time: 9/3/2008 8:33:52 AM

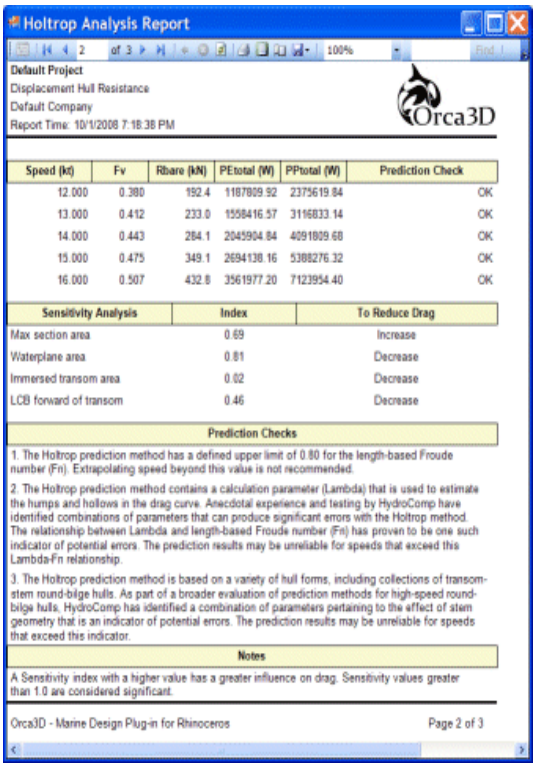
Prediction Parameter	Value	Vessel Data	Value
Method	Savitsky	MaxPlaningLength	27.310 ft
SpeedCheck	OK	MaxPlaningBeam	8.280 ft
HullCheck	OK	DisplacementBare	10000.000 lbf
DesignMarginPercent	5	LCGFwdTransom	10.599 ft
DesignSpeed	26 kt	VCGAboveBL	0.200 ft
WaterType	Salt	ShaftAngle	0.000 deg
WaterDensity	1025.9 kg/m^3	LCEFwdTransom	-0.851 ft
WaterViscosity	1.1883E-06 m^2/s	VCEAboveBL	-2.100 ft
Propulsive Efficiency	50 %		

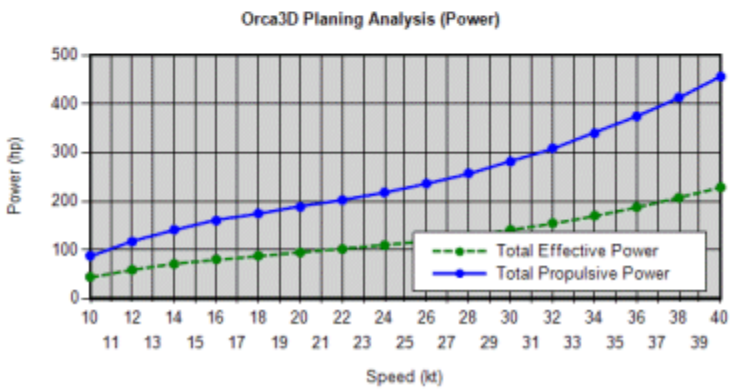
Parameter Check	Value	Minimum	Maximum	Type
LcgBchRatio	1.28	0.6	3	Computed
FnBchMax	2.69	1.43	13	Computed
DeadriseMidLen	17.67 deg	0	30	Computed
CLBmax	0.08	0	0.5	Computed

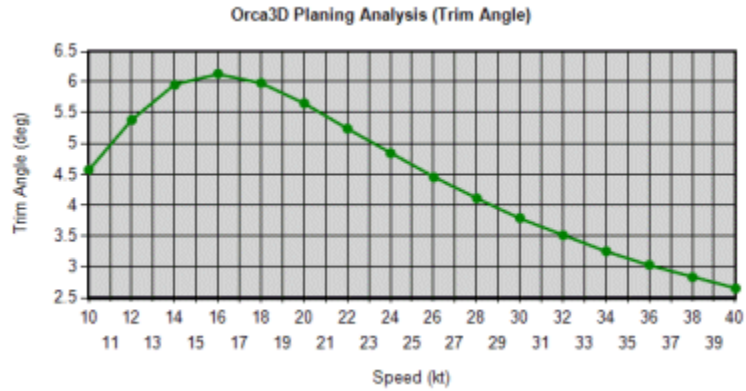
Speed (kt)	Fnv	Trim (deg)	Rbare (N)	Rtotal (N)	PEtotal (hp)	PPtotal (hp)
10.000	1.280	4.570	5994.5	6294.2	43.42	86.84
12.000	1.540	5.380	6677.2	7011.1	58.04	116.08
14.000	1.800	5.950	6919.1	7265.1	70.17	140.34
16.000	2.050	6.130	6863.9	7207.1	79.55	159.10
18.000	2.310	5.980	6664.2	6997.4	86.89	173.78
20.000	2.560	5.650	6464.5	6787.7	93.65	187.30











In addition to predicting the performance, the analysis gives insight into how to improve the performance, with a Drag Reduction Analysis. Four key parameter are evaluated, and recommendations given on adjustments to optimize your design; Planing Beam, Deadrise Angle, LCG location, and Shaft Angle.