Default Project
Design Hydrostatics Analysis
Default Company
Report Time: Tuesday, May 14, 2024, 10:55:53 PM
Model Name: C:\Users\Tommy Rohmann\Desktop\Power Boat\60 ft Research Vessel Finale.3dm

Condition Summary

Load Condition Parameters

Condition	Weight / Sinkage	LCG / Trim	TCG / Heel	VCG (ft)
Condition 1	0.000 ft	0.000 deg	0.000 deg	7

Resulting Model Attitude and Hydrostatic Properties

Condition	Sinkage (ft)	Trim(deg)	Heel(deg)	Ax(ft^2)
Condition 1	0.000	0.000	0.000	77.19

Condition	Displacement Weight (lbf)	LCB(ft)	TCB(ft)	VCB(ft)	Wet Area (ft^2)
Condition 1	170213.121	27.463	0.000	-1.655	1306.450

Condition	Awp(ft^2)	LCF(ft)	TCF(ft)	VCF(ft)
Condition 1	969.397	29.662	0.000	0.000

Condition	BMt(ft)	BMl(ft)	GMt(ft)	GMl(ft)
Condition 1	11.223	71.116	2.568	62.461

Condition	Cb	Cp	Cwp	Cx	Cws	Cvp
Condition 1	0.311	0.612	0.793	0.508	3.379	0.392

Notes

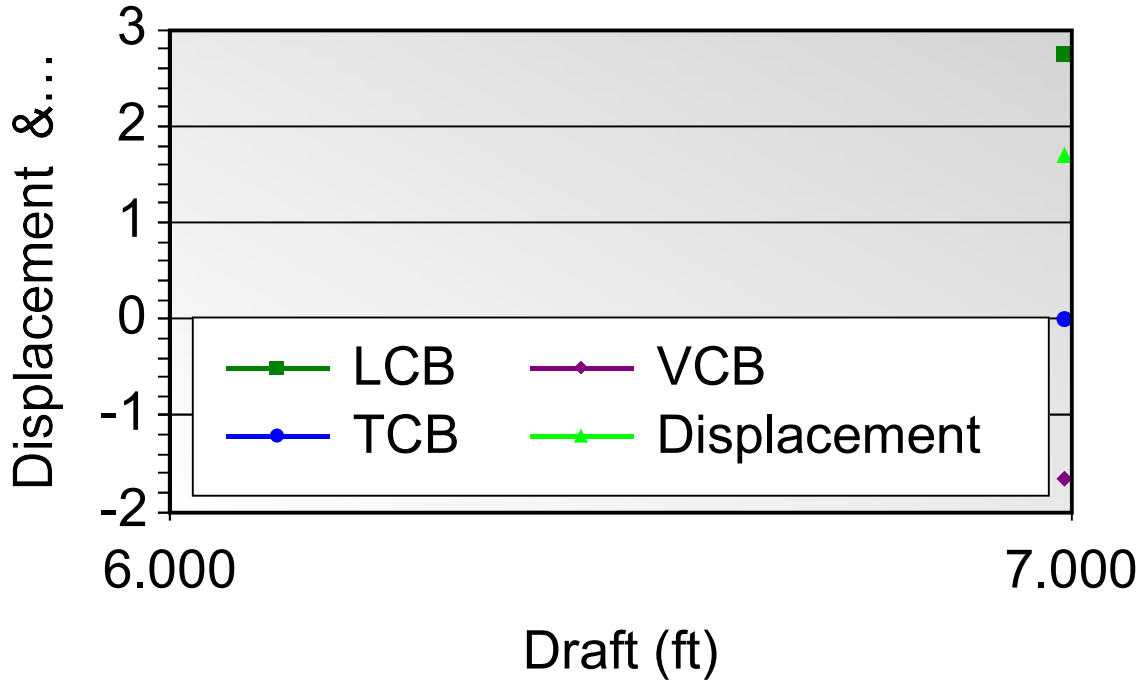
1. Locations such as the center of buoyancy and center of flotation are measured from the origin in the Rhinoceros world coordinate system.

2. The orientation of the model for an Orca3D hydrostatics solution is defined in terms of “sinkage,” “trim,” and “heel.” The sinkage value represents the depth of the body origin (i.e. the Rhino world origin) below the resultant flotation plane, and is sometimes referred to as "origin depth." Heel and trim represent angular rotations about the Rhino longitudinal and transverse axes, respectively, and are taken in that order. For a more detailed description of these terms see the Orca3D documentation.

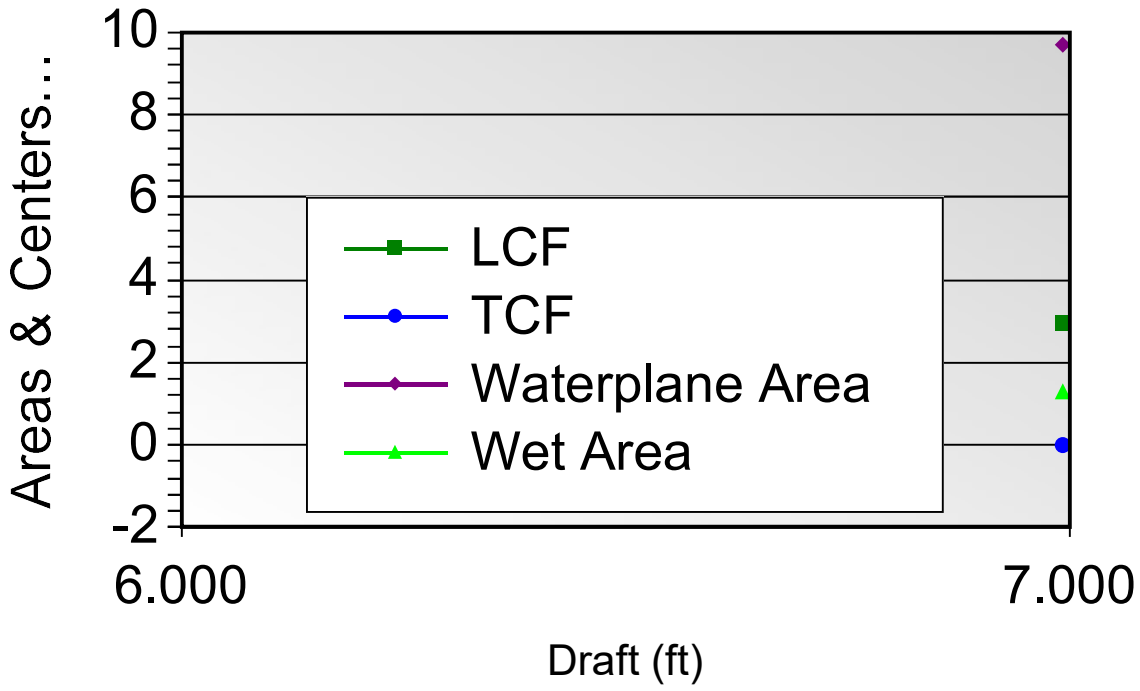
3. Hull form coefficients are non-dimensionalized by the waterline length.

4. Calculation of Cp and Cx use Orca sections to determine Ax. If no Orca sections are defined, these values will be reported as zero.

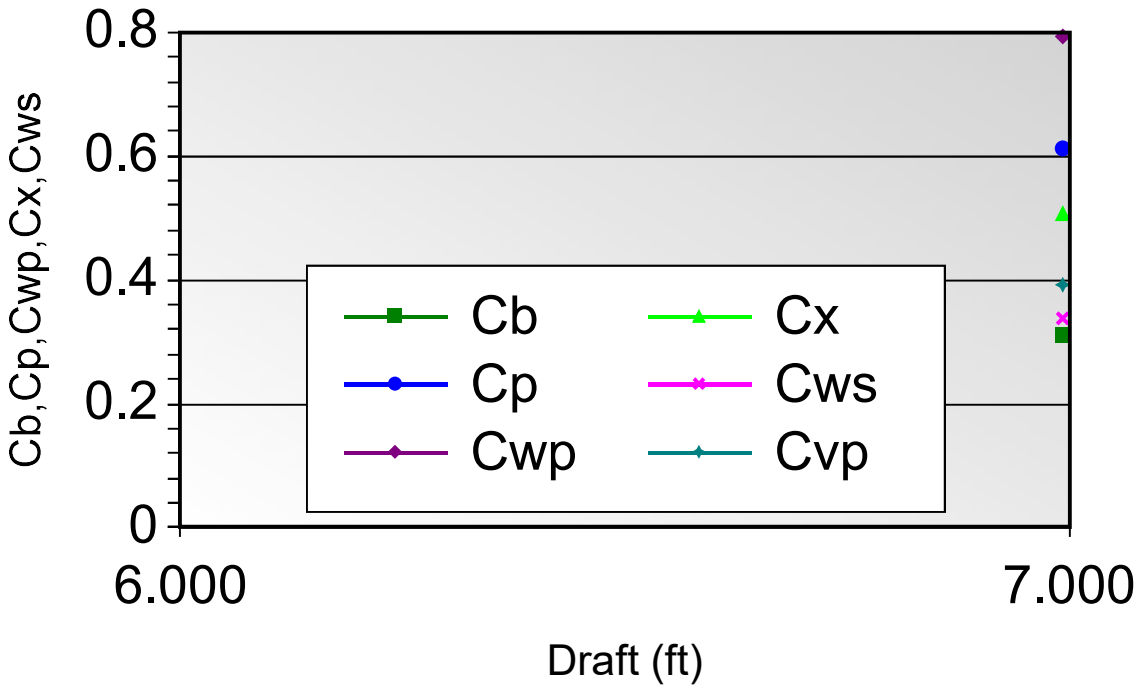
Volumetric Properties



Area Properties



Hull Form Coefficients



Object Type	Name	ID
polysurface	Unnamed Rhino Object	{bbe09857-4bc5-4fb9-9658-13e67da71253}

Condition Name=Condition 1,Model Sinkage=0.00,Model Trim=0.00,Model Heel=0.00

General Info

Analysis Type	FreeFloatEquilibrium	Up Direction = Positive_Z	
		Fwd Direction = Positive_X	

Surface Meshing Parameters

Density	1	Minimum edge length	0.0001 ft
Maximum angle	0	Maximum edge length	0 ft
Maximum aspect ratio	0	Max distance, edge to surf.	0 ft
Minimum initial grid quads	0	Jagged seams	False
Refine mesh	True	Simple planes	True

Load Condition Parameters

Model Sinkage	0.000 ft
Model Trim	0.000 deg
Model Heel	0.000 deg
VCG	7 ft
Fluid Type	Seawater
Fluid Density	1.991 slug/ft^3
Mirror Geometry	False

Resultant Model Attitude

Heel Angle	0.000 deg	Sinkage	0.000 ft
Trim Angle	0.000 deg		

Overall Dimensions

Length Overall, LOA	58.498 ft	Loa / Boa	2.597
Beam Overall, Boa	22.523 ft	Boa / D	1.261
Depth Overall, D	17.857 ft		

Waterline Dimensions

Waterline Length, Lwl	56.232 ft	Lwl / Bwl	2.587
Waterline Beam, Bwl	21.737 ft	Bwl / T	3.109
Navigational Draft, T	6.992 ft	D / T	2.554

Volumetric Values

Displacement Weight	170213.121 lbf	Displ-Length Ratio			427.364
Volume	2657.718 ft^3				
LCB	27.463 ft	FB/Lwl	0.508	AB/Lwl	0.492
TCB	0.000 ft	TCB / Bwl			0.000
VCB	-1.655 ft				
Wetted Surface Area	1306.450 ft^2				
Moment To Trim	15755.645 lbf-ft/in				

Waterplane Values

Waterplane Area, Awp	969.397 ft^2				
LCF	29.662 ft	FF/Lwl	0.469	AF/Lwl	0.531
TCF	0.000 ft	TCF / Lwl			0.000
Weight To Immerse	5173.738 lbf/in				

Sectional Parameters

Ax	77.193 ft^2		
Ax Location	23.300 ft	Ax Location / Lwl	0.582

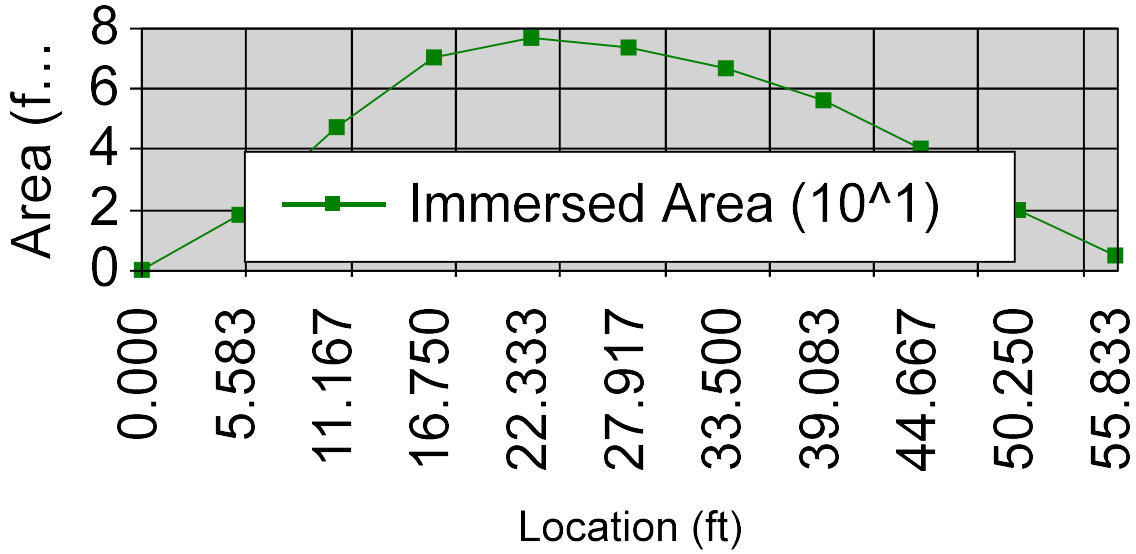
Hull Form Coefficients

Cb	0.311	Cx	0.508
Cp	0.612	Cwp	0.793
Cvp	0.392	Cws	3.379

Static Stability Parameters

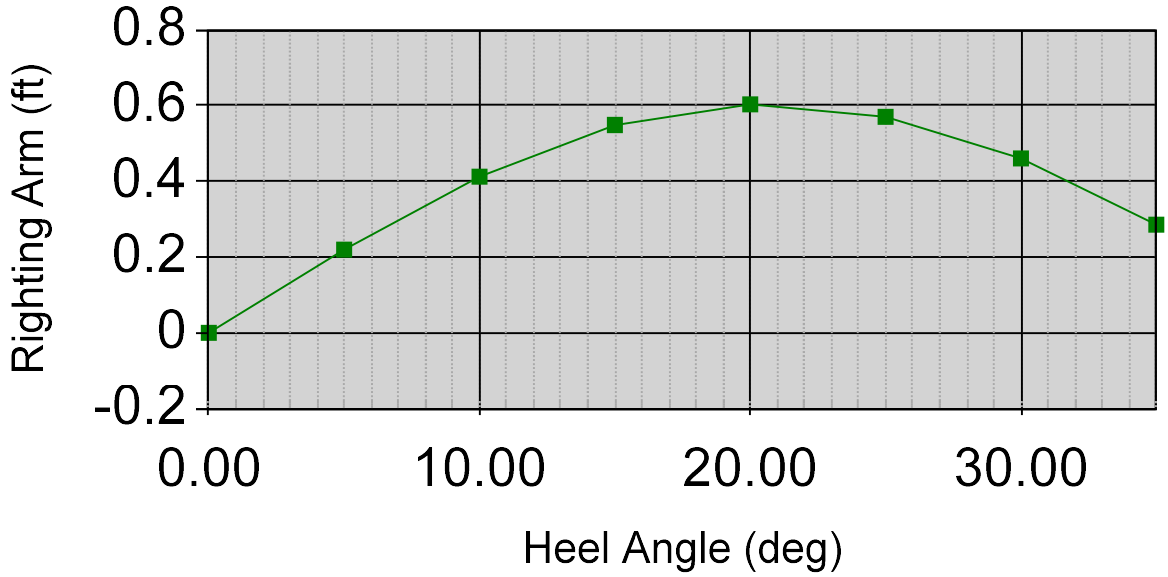
I(transverse)	29827.979	ft^4	I(longitudinal)	189005.930	ft^4
BMt	11.223	ft	BMl	71.116	ft
GMt	2.568	ft	GMl	62.461	ft
Mt	9.568	ft	Ml	69.461	ft

Station Data



Location (ft)	Immersed Area (ft^2)	Immersed Girth (ft)
0.000	0.115	1.310
5.583	18.413	11.811
11.167	47.416	19.866
16.750	70.527	24.610
22.333	77.048	26.469
27.917	73.880	27.152
33.500	66.918	27.948
39.083	56.338	28.675
44.667	40.371	28.807
50.250	19.964	18.245
55.833	4.906	10.218

Stability Curve



Heel(deg)	Trim(deg)	Righting Arm (ft)	Righting Moment (lbf-ft)
0.000	0.000	0.000	0.00
5.000	-0.033	0.220	37385.51
10.000	-0.134	0.412	70170.45
15.000	-0.307	0.548	93348.18
20.000	-0.547	0.603	102656.01
25.000	-0.842	0.570	96959.27
30.000	-1.171	0.460	78344.25
35.000	-1.498	0.285	48579.51