

**B20-R**

Hydrostatics &amp; Stability Analysis

Sea Tech

Report Time: 09 март 2019 г., 15:24:04 ч.

Model Name: D:\MyWorks\Orca3D v1.3 and 1.4-WIP\Sea Tech-Models\B20-R-Models\B20-R-SB-27022019.3dm

**Condition Summary****Load Condition Parameters**

Condition	Weight / Sinkage	LCG / Trim	TCG / Heel	VCG (m)
Condition 1	54,850 tonne-f	0,432 deg	0,000 deg	2,24

**Resulting Model Attitude and Hydrostatic Properties**

Condition	Sinkage (m)	Trim(deg)	Heel(deg)	Ax(m <sup>2</sup> )
Condition 1	1,130	0,432	0,000	4,70

Condition	Displacement Weight (tonne-f)	LCB(m)	TCB(m)	VCB(m)	Wet Area (m <sup>2</sup> )
Condition 1	54,850	8,947	0,000	0,739	92,927

Condition	Awp(m <sup>2</sup> )	LCF(m)	TCF(m)	VCF(m)
Condition 1	69,170	8,062	0,000	1,191

Condition	BMt(m)	BMI(m)	GMt(m)	GMI(m)
Condition 1	1,925	26,730	0,424	25,228

Condition	Cb	Cp	Cwp	Cx	Cws	Cvp
Condition 1	0,465	0,596	0,722	0,780	2,832	0,645

**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.

## B20-R

Hydrostatics & Stability Analysis

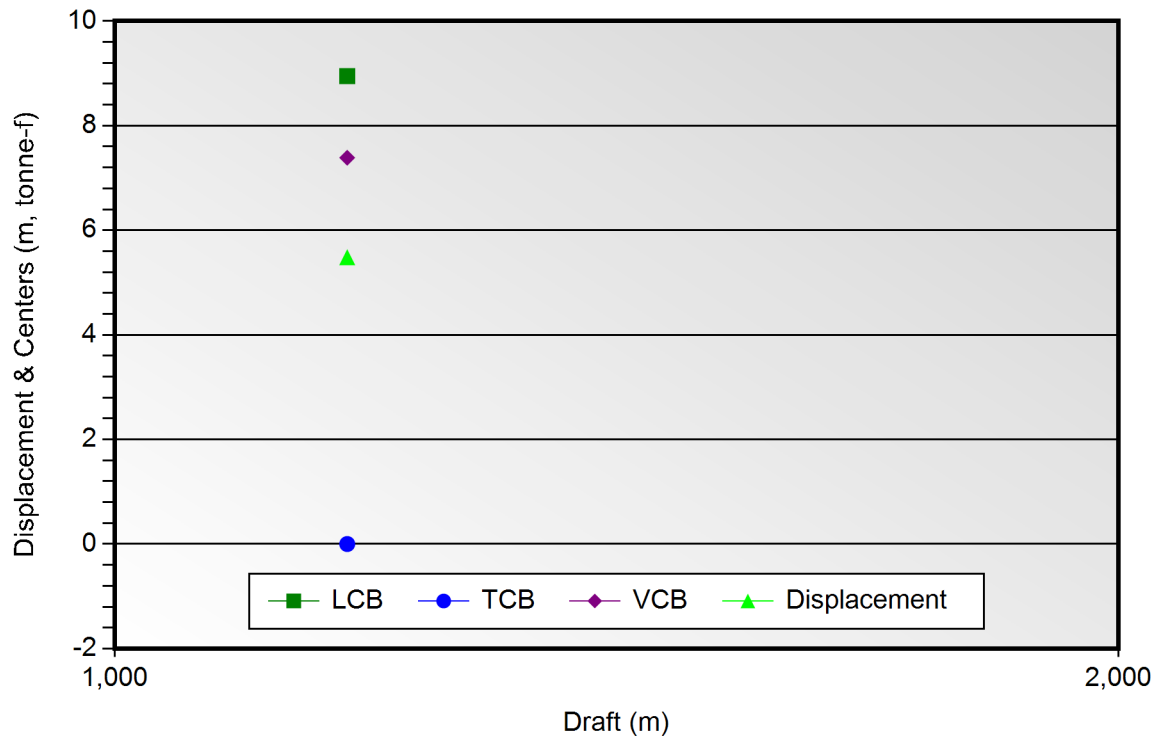
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### Volumetric Properties



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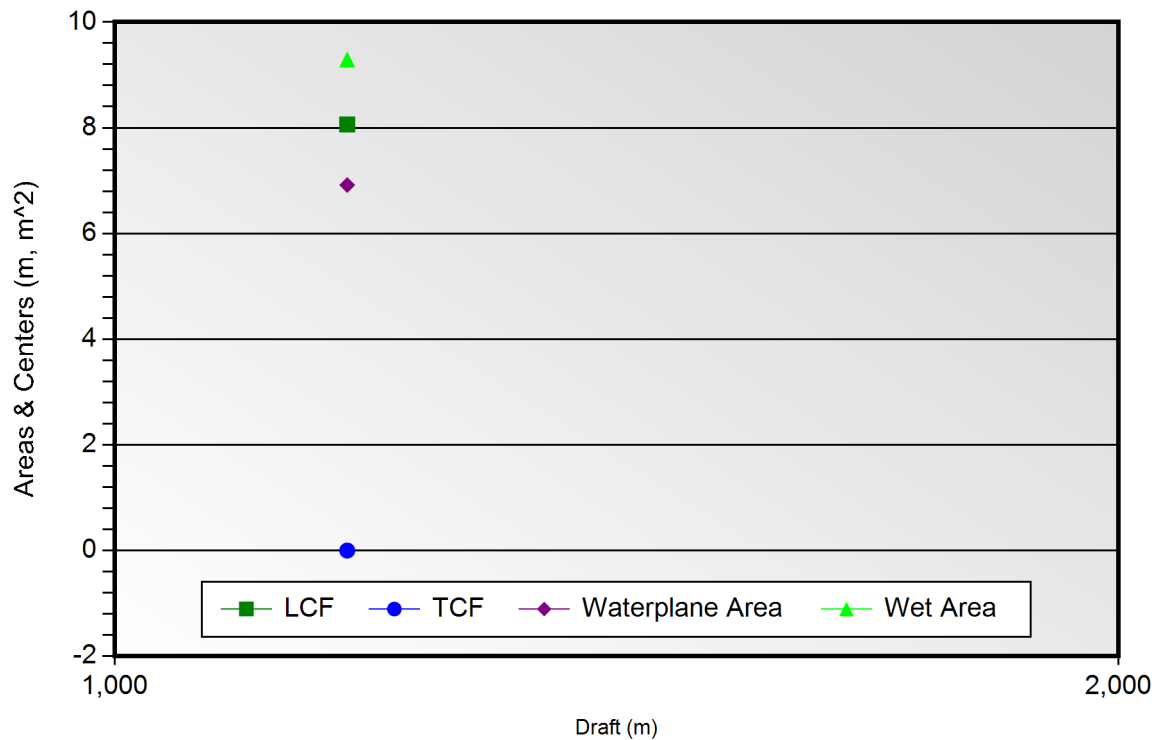
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### Area Properties



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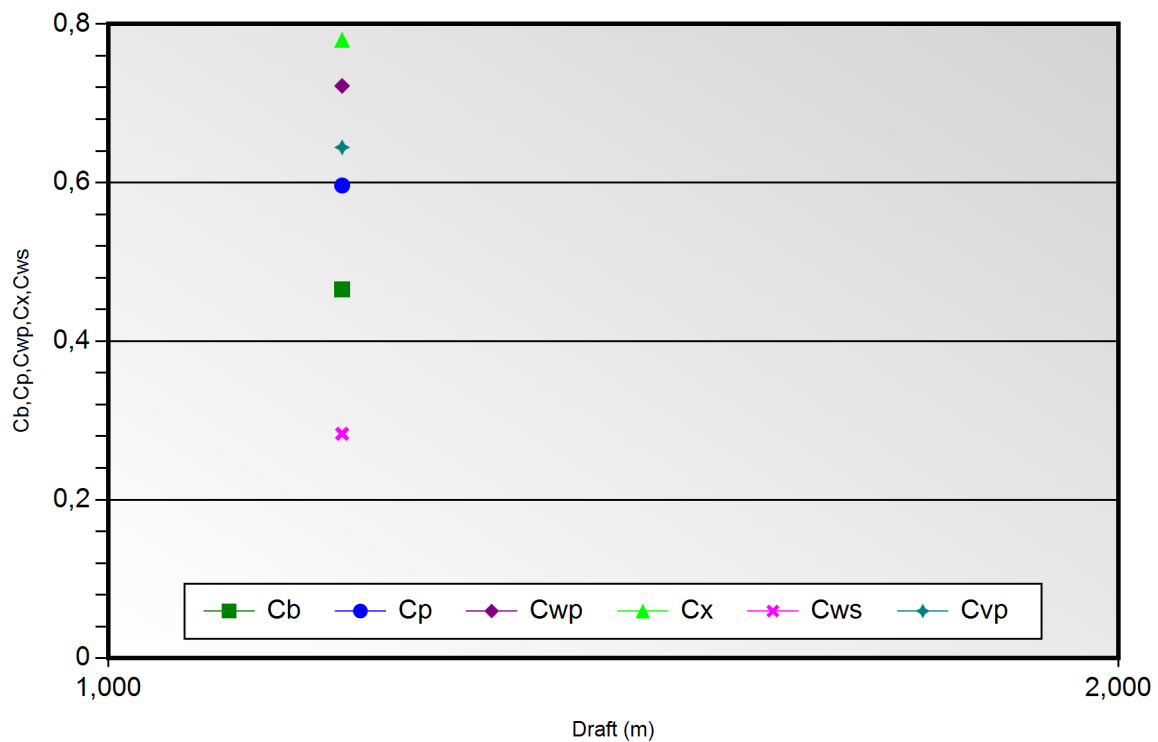
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### Hull Form Coefficients



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Object Type	Name	ID
surface	Unnamed Rhino Object	{54ae0a3d-ea2b-40a1-abab-55e3f990ab97}
surface	Unnamed Rhino Object	{4d9af366-9d23-4de6-bfa4-1d53915558d5}
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surface	Unnamed Rhino Object	{0f043379-cea5-492b-8d9c-335dce0a70ef}
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surface	Unnamed Rhino Object	{443803e4-b161-409e-891c-462c95f6764d}
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surface	Unnamed Rhino Object	{eb975443-66bb-452c-9d27-fdb5efac39bd}
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*Condition Name=Condition 1, Weight=54,85, Model Trim=0,43, Model Heel=0,00*


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**General Info**

Analysis Type	FreeFloatEquilibrium	Up Direction = Positive_Z
		Fwd Direction = Positive_X

**Surface Meshing Parameters**

Density	1	Minimum edge length	0,0001 m
Maximum angle	0	Maximum edge length	0 m
Maximum aspect ratio	0	Max distance, edge to surf.	0 m
Minimum initial grid quads	0	Jagged seams	False
Refine mesh	True	Simple planes	True

**Load Condition Parameters**

Weight	54,850 tonne-f
Model Trim	0,432 deg
Model Heel	0,000 deg
VCG	2,24 m
Fluid Type	Freshwater
Fluid Density	999,000 kg/m <sup>3</sup>
Mirror Geometry	True

**Resultant Model Attitude**

Heel Angle	0,000 deg	Sinkage	1,130 m
Trim Angle	0,432 deg		

**Overall Dimensions**

Length Overall, LOA	19,974 m	Loa / Boa	3,582
Beam Overall, Boa	5,576 m	Boa / D	1,507
Depth Overall, D	3,699 m		

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**Waterline Dimensions**

Waterline Length, Lwl	19,605 m	Lwl / Bwl	4,012
Waterline Beam, Bwl	4,887 m	Bwl / T	3,968
Navigational Draft, T	1,232 m	D / T	3,004

**Volumetric Values**

Displacement Weight	54,850 tonne-f	Displ-Length Ratio	202,853
Volume	54,905 m <sup>3</sup>		
LCB	8,947 m	FB/Lwl	0,557
TCB	0,000 m	AB/Lwl	0,443
VCB	0,739 m	TCB / Bwl	0,000
Wetted Surface Area	92,927 m <sup>2</sup>		
Moment To Trim	0,706 tonne-m/cm		

**Waterplane Values**

Waterplane Area, Awp	69,170 m <sup>2</sup>		
LCF	8,062 m	FF/Lwl	0,602
TCF	0,000 m	AF/Lwl	0,398
Weight To Immerse	0,691 tonne-f/cm	TCF / Lwl	0,000

**Sectional Parameters**

Ax	4,696 m <sup>2</sup>		
Ax Location	8,860 m	Ax Location / Lwl	0,561

**Hull Form Coefficients**

Cb	0,465	Cx	0,780
Cp	0,596	Cwp	0,722
Cvp	0,645	Cws	2,832

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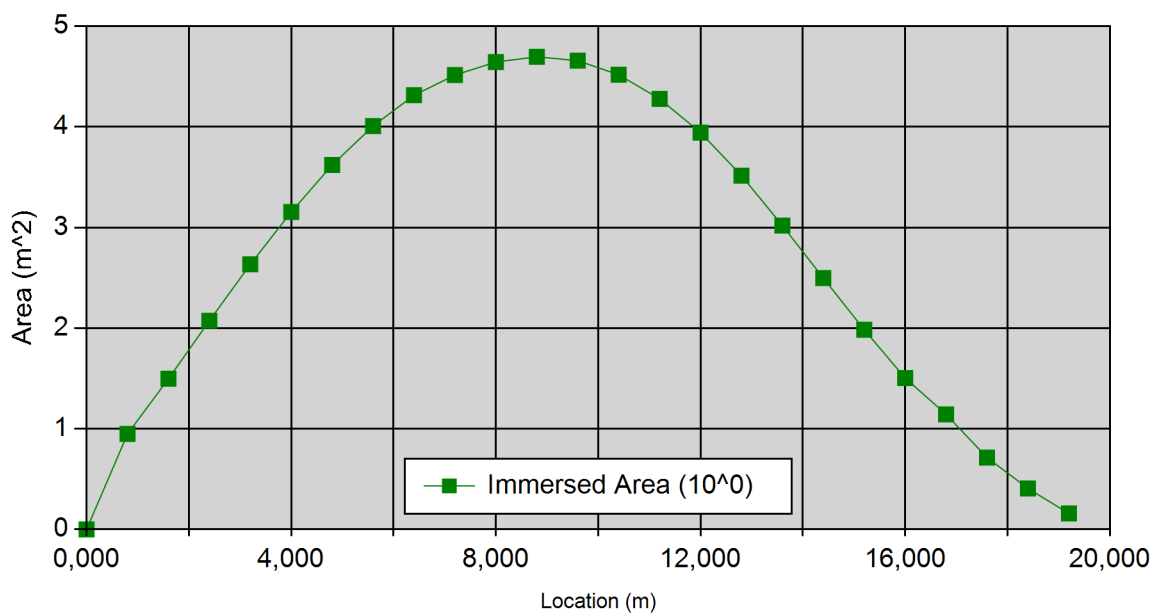
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### Static Stability Parameters

I(transverse)	105,717 m <sup>4</sup>	I(longitudinal)	1467,583 m <sup>4</sup>
BMt	1,925 m	BMI	26,730 m
GMt	0,424 m	GMI	25,228 m
Mt	1,467 m	MI	26,271 m

### Station Data



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Location (m)	Immersed Area (m^2)	Immersed Girth (m)
0,000	0,000	0,000
0,800	0,948	4,440
1,600	1,497	4,930
2,400	2,073	4,897
3,200	2,634	5,240
4,000	3,154	5,519
4,800	3,621	5,745
5,600	4,008	5,916
6,400	4,314	6,008
7,200	4,515	6,044
8,000	4,644	6,035
8,800	4,696	5,982
9,600	4,657	5,879
10,400	4,517	5,716
11,200	4,278	5,493
12,000	3,943	5,206
12,800	3,515	4,850
13,600	3,019	4,440
14,400	2,497	4,008
15,200	1,983	3,582
16,000	1,503	3,187
16,800	1,143	3,048
17,600	0,713	2,530
18,400	0,406	2,252
19,200	0,157	1,939