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**Preliminary Weight Estimate**

**F/V Indiana: 56' Seiner**

Description	Sq. In. Area	Unit Weight lbs	Total Weight lbs	VCG		
				LCG In from Origin	TCG In from Origin	VCG In from Origin
<b>Hull, Deck Structure:</b>						
Hull Planking (1.75" wet fir) in^3	166547.00	0.0405	6745.15	318.90	0.00	85.23
Anchor Guard (.75" iron bark) in^2	1400.00	0.0400	56.00	17.26	-11.28	139.72
Hull Framing (1.875" x 3" oak, 12" O.C.)	13214	5.625	74328.75	0.0330	2452.85	317.89
Sheer clamps, shelves (cu. In. dry fir)	20228.00	0.0197	398.49	307.35	0.00	124.69
Hull ceiling (1.5" fir)	51071.00	0.0295	1506.59	272.67	0.00	103.79
Bilge Stringers (cu. In. dry fir)	104957.00	0.0197	2067.65	316.97	0.00	80.64
Keelsons, engine stringers (cu. In. dry fir)	56014.00	0.0197	1103.48	290.00	0.00	62.70
Stem (cu. In. purple heart)	11031.00	0.0370	408.15	8.05	0.00	136.64
Keel timber/ stem knee (cu. In. wet fir)	69612.00	0.0260	1809.91	290.20	0.00	45.50
Stern post, horn timber, cheeks (cu. In. wet fir)	26056.00	0.0260	677.46	590.19	0.00	72.16
Stern timbers (cu. In. semi dry fir)	63794.00	0.0230	1467.26	641.38	0.00	113.80
Floor timbers in^2	9902.00	0.0694	687.20	307.25	0.00	59.24
Hull bulkheads (.75" fir ply) in^2	17881.00	0.0156	278.94	129.9	0.00	116.60
Break beam (4" fir) In^3	14666.00	0.0208	305.05	268.41	0.00	125.95
Decking (1.75" fir)	164268.00	0.0197	3236.08	343.4	0.00	135.65
Deck beams (cu. In. fir)	127898.00	0.0197	2519.59	340	0.00	129.34
Hanging Kneeses (3" Fir)			100.00	238.88	0.00	97.23
Sponson (cu. In. semi dry fir)	30065.00	0.0220	661.43	379.137	0.00	118.80
Main guard (cu. In. iron bark)	13386.00	0.0347	464.49	376.28	0.00	119.78
Upper guard (1.5" thick UHMW) in^3	2157.00	0.0340	73.34	131.7	0.00	153.11
Shaft alley sides (1.5" wet fir) in^3	10912.00	0.0405	441.94	386.67	0.00	61.72
Shaft alley top (.75" wet fir ply)	8866.00	0.0156	138.31	388.64	0.00	67.19
Fwd fish hold bulkhead sheathing(.75"fir ply) in^2	8039.00	0.0156	125.41	292	0.00	91.67
Fwd fish hold bulkhead framing (2" x 4" fir) in.	1122.00	0.1670	187.37	292	0.00	91.67
Aft fish hold bulkhead sheathing (.75" fir ply) in^2	6730.00	0.0156	104.99	514	0.00	93.84
Aft fish hold bulkhead framing(2" x 4" fir) in.	727.00	0.1670	121.41	514	0.00	93.84
Fishhold sheathing on sides (.375" fir ply+.1875" FRP)	75422.00	0.0174	1312.34	414.8	0	80.4
Fishhold sheathing on top (.75" fir ply+.1875" FRP)	35932.00	0.0253	909.08	409.21	0.00	116.00
Hull Plank Fasteners (2500 #18 x 3.5")			300.00	316.33	0.00	85.14
Hull Bolts			400.00	316.33	0.00	85.14
Keel Bolts			200.00	296.8	0.00	48.90
Hull Cotton			150.00	316.33	0.00	85.14
Hull Oakum			300.00	316.33	0.00	85.14
Coatings whole vessel			500.00	316.33	0.00	85.14
Bulwark side plate (.25" plate) in^2	34303.00	0.0240	823.27	347.68	0.00	148.95
Fwd bulwark cap plates(.375" x 4") in^2	2311.00	0.0360	83.20	133.72	0.00	177.89
Fwd bulwark base plates(.375" x 6")	3412.00	0.0360	122.83	133.76	0.00	154.36
Fwd bulwark stanchions (3.5" x 4" x .25")	3626.00	0.0240	87.02	135.57	0.00	165.75
Fwd bulwark cap rails cu. In. ipe	3003.00	0.0347	104.20	130.13	0.00	178.79
Aft bulwark all pcs. except side plate(.25" plate)	27766.00	0.0240	666.38	486.33	0.00	142.60
SS skiff guard (.25" plate)	2084.00	0.0720	150.05	666.37	0.00	144.00
Existing concrete ballast volume (w/o floor timber volume deduction)			93698.00			
Floor timber volume deduction	5552	3	16656.00			
Corrected volume			77042.00	0.0868	6687.25	318.8
Proposed addit'l concrete ballast (w/o floor timber volume deduction)			32586.00			
Floor timber volume deduction	1904	3	5712.00			
			26874.00	0.0868	2332.66	139.5
Hull Margin			2000.00	210	0.00	100.00
<b>Superstructure:</b>						
PH Exterior, interior sheathing (.5" fir ply) in^2			83531.00	0.0104	868.72	236.88
PH vert'l framing (2.75" x 3" fir) in.	4844	8.25	39963.00	0.0208	831.23	236.88
PH aft sole (.75" ply) in^2			7011.00	0.0156	109.37	301.93
PH aft sole beams (2.5" x 2.5" fir) in^3			3000.00	0.0197	59.10	301.95
PH sole overlayment (.375" fir ply) in^2			23765.00	0.0077	182.99	231.12
PH Top beams (Fir 3"M x 3"S) in^3			16649.00	0.0197	327.99	234.03
PH doors				80.00	283.90	38.16
Jamb's (1" teak) in^2			6020.00	0.0260	156.52	229.81
Glazing (1/4" single thickness) in^2			5585.00	0.0230	128.46	207.22
Brow in^3			2239.00	0.0197	44.11	237.83
Soffit in^2			4444.00	0.0104	46.22	204.6
Fly Bridge Sheathing (.5" fir ply) in^2			16863.00	0.0104	175.38	187.27
Fly Bridge framing (1.5 x 3.5 fir) in.	2280	5.25	11970.00	0.0208	248.98	187.27
Flybridge console			4211.00	0.0180	75.80	126.66
Superstructure margin			200.00	236.88	0.00	177.81

**Interior:**

PH Interior Bhds, joinery carcasses (.75" fir ply)	68609.00	0.0156	1070.30	228	4.99	174.76
PH Interior framing			150.00	228	4.99	174.76
Fo'c'sle joinery (.75" fir ply) in^2	30072.00	0.0156	469.12	122.2	2.3	106.17
Fo'c'sle sole framing in^3	2030.00	0.0197	39.99	127.56	0	76.60
Fo'c'sle joinery framing			75.00	122.2	2.3	106.17
Water tank mounts						
ER genset platform in^3	8741.00	0.0208	181.81	219.57	-48.39	89.84
ER joinery (.75" fir ply) in^2	8765.00	0.0156	136.73	214.13	22.13	81.66
Hydraulic tanks mounts			50.00	221.68	57.30	70.00
Interior margin			300.00	135	5.4	145.00

**Hull, Deck, Superstructure Outfit, gear:**

Windlass			500.00	79.08	0	174.40
Fjorford #12 120 lb Anchor			120.00	4.33	-9.12	194.61
300' 3/4" anchor cable			300.00	79.08	0	174.40
30' 3/4" anchor chain			170.00	79.08	0	174.40
(3) 18" Cleats (bolts, blocking)			60.00	91.11	0	162.87
Anchor Roller			75.00	4.32	-9.21	194.61
Stem Iron (1 1/4" S x 1.75" M, cu. in. steel)	236.00	0.2830	66.79	-0.78	0	146.15
Lower Stem guard (.5" steel plate)	462.00	0.1450	66.99	25.87	0	63.21
Skeg guard (cu in. steel)	3483.00	0.2830	985.69	550	0	27.28
Dickinson Atlantic Stove, SS encl., exhaust	189 30.00	40.0000	259.00	275.9	46.14	159.67
15 gal Day Tank for Dickinson	1632.00	0.0120	19.58	320.66	56.73	219.87
15 gal diesel	15.00	7.2500	108.75	320.66	56.73	219.87
Toilet/plumbing			50.00	304.16	46.77	149.00
Exhaust cowl, tubing above cowl (.125" steel)	11715.00	0.0120	140.58	272	-13.53	271.89
Life Raft			100.00	284.9	0	222.70
Chest Freezer			124.00	187.67	40.64	244.72
Fwd deck boxes (.75" ply)	11600.00	0.0180	208.80	161.1	0	242.88
Aft stbd deck box (.75" ply)	6048.00	0.0180	108.86	227.35	51.23	234.41
Aft port deck box (.75" ply)	7488.00	0.0180	134.78	238.27	-52.33	233.16
Purse winch			830.00	385	0	150.00
Steering wheel, helm pump			100.00	138.1	0	190.00
Rudder (cubic in of steel)	1765.00	0.2890	510.09	622	0	47.18
Tyee deck pump			40.00	352.89	-48.12	124.82
Electric bilge pump			20.00	464	0	41.60
Roller chock			120.00	384.5	85.22	152.00
Fish Hatch (4' x 6' .25" alum)	8355.00	0.0250	208.88	425	0	131.20
Radar			75.00	196.16	-42.14	285.50
Electronics			50.00	152.53	-39.9	197.00

**Mast and Rigging:**

Mast (cubic in. of steel)	2531.00	0.0998	252.59	340.385	0	325.37
Legs, struts (2" sch. 40 6061) in^3	1229.00	0.0990	150.00	250	0	304.90
Vang points (3" sch 40 6061, .75" plate) in^3	1000.00	0.0990	99.00	333.32	0	198.24
Vang gear			100.00	484	0	349.00
Boom	9059.00	0.0995	901.37	473.5	0	343.00
Mast/boom winches	3.00	150.0000	450.00	395.79	0	264.05
Blocks	6.00	15.0000	90.00	514.5	0	434.70
cable ft.	250.00	0.4560	114.00	438	0	359.00
Power Block			600.00	567.58	0	376.85

**Engine Room / Mechanical / Electrical:**

Main engine: John Deer 6081 300 HP wet + flex mounts			2000.00	238.88	0.00	97.23
Main engine exhaust (.19" steel)	5485.00	0.0180	98.73	252.89	-2.93	177.44
Muffler, Exhaust Insulation			260.00	252.89	-2.93	177.44
Steel engine mount fabrication			400.00	238.17	0.00	76.16
Gear: Twin Disc 514			1075.00	267.44	0.00	86.07
PTO			500.00	201.69	0.00	93.70
Driveline (3" shaft, coupl's, bearings, mounts)			1444.00	436.53	0.00	58.43
Prop 41 x 23 4 blade			280.00	593.66	0.00	40.64
Chiller: 18T IMS			300.00	302.16	0.00	111.70
RSW compressor, accum's, condenser			400.00	248.90	-52.00	101.83
E/R T-hulls			200.00	242.39	24.00	80.00
RSW piping (3" sch 80 PVC)			200.00	309.85	0.00	103.00
RSW valves			50.00	309.85	0.00	103.00
RSW water entrained			100.00	309.85	0.00	103.00
Genset: MER 27KW			975.00	198.50	0.00	108.80
RSW pump			150.00	259.84	47.20	80.29
ER thru hulls			100.00	238.88	0.00	97.23
Steering cylinder, tiller, upper bearing mount			75.00	620.50	0.00	107.20
twin Racor Fuel filters, fuel plumbing			50.00	219.05	40.26	90.43
117 gal hyd tank (.125" steel)	5732.00	0.0360	206.35	221.68	57.30	90.50
100 gal hyd fluid	100.00	7.6900	769.00	221.68	57.30	90.50
Hyd. Plumbing in ER			150.00	238.17	0.00	76.16
Hyd. Plumbing on back of PH			150.00	340.00	-19.00	184.72
325 gal diesel port tank (.25" 5052)	13020.00	0.0250	325.50	545.95	-38.94	96.49
325 gal diesel stbd tank (.25" 5052)	13020.00	0.0250	325.50	545.95	38.94	96.49
100 gal diesel day tank (.25" 5052)	6816.00	0.0250	170.40	283.07	0.00	102.50
(2) 150 gal water tanks (.19" galv steel)	15321.00	0.0360	551.56	55.46	0.00	125.21
1 8D battery and box	1.00	160.0000	160.00	243.03	-24.00	71.74
ER wiring/electrical components			250.00	180.00	0.00	11.79
(4) 12V Dyno house batteries	4.00	50.0000	200.00	221.88	56.86	108.93

**Stores and gear:**

Galley provisions	150.00	229.80	40.37	169.37
Stateroom gear	200.00	218.00	-36.00	169.00
Fo'c'sle gear	500.00	117.00	0.00	103.20
Tools	200.00	159.00	45.00	118.16
Spares	150.00	159.00	45.00	118.16
Spare oil	200.00	278.00	-12.00	84.70
Gear in fwd deck boxes	200.00	161.1	35	242.88
Gear in aft stbd deck box	100.00	227.35	51.23	234.41
Gear in port deck box	100.00	238.27	-52.33	233.16

		LCG In from Origin	TCG In from Origin	VCG In from Origin
<b>Total Weight Lightship (incl. stores and gear, no fuel)</b>	<b>73,300.44</b>	<b>308.81</b>	<b>1.41</b>	<b>111.51</b>

**Loading Scenarios:**

**1. Full fuel, Full water, skiff off, net off, not tanked (Storage)**

325 gal diesel port tank	325.00	7.2500	2356.25	545.95	-38.94	96.49
325 gal diesel stbd tank	325.00	7.2500	2356.25	545.95	38.94	96.49
100 gal diesel day tank	100.00	7.2500	725.00	283.00	0.00	116.00
300 gal water	300.00	8.3200	2496.00	55.46	0.00	125.21
985 ft³ fish hold	0.00	64.0000	0.00	402.28	0.00	93.13
Skiff	5840.00	0.0000	0.00	634.17	0.00	182.83
Net	5000.00	0.0000	0.00	572.00	0.00	158.00

		LCG In from Origin	TCG In from Origin	VCG In from Origin
<b>Totals</b>	<b>81,233.94</b>	<b>314.56</b>	<b>1.27</b>	<b>111.10</b>

**2. No fuel, no water, skiff on, net on deck, not tanked (Highest CG)**

325 gal diesel port tank	0.00	7.2500	0.00	545.95	-38.94	96.49
325 gal diesel stbd tank	0.00	7.2500	0.00	545.95	38.94	96.49
100 gal diesel day tank	0.00	7.2500	0.00	283.00	0.00	116.00
300 gal water	0.00	8.3200	0.00	55.46	0.00	125.21
985 ft³ fish hold	0.00	64.0000	0.00	402.28	0.00	93.13
Skiff	5840.00	1.0000	5840.00	634.17	0.00	182.83
Net	5000.00	1.0000	5000.00	572.00	0.00	158.00

		LCG In from Origin	TCG In from Origin	VCG In from Origin
<b>Totals</b>	<b>84,140.44</b>	<b>347.04</b>	<b>0.00</b>	<b>119.22</b>

**3. Full fuel, Full water, skiff on, net on deck, not tanked (Running inshore)**

325 gal diesel port tank	325.00	7.2500	2356.25	545.95	-38.94	96.49
325 gal diesel stbd tank	325.00	7.2500	2356.25	545.95	38.94	96.49
100 gal diesel day tank	100.00	7.2500	725.00	283.00	0.00	116.00
300 gal water	300.00	8.3200	2496.00	55.46	0.00	125.21
985 ft³ fish hold	0.00	64.0000	0.00	402.28	0.00	93.13
Skiff	5840.00	1.0000	5840.00	634.17	0.00	182.83
Net	5000.00	1.0000	5000.00	572.00	0.00	158.00

		LCG In from Origin	TCG In from Origin	VCG In from Origin
<b>Totals</b>	<b>92,073.94</b>	<b>348.81</b>	<b>0.00</b>	<b>118.19</b>

**4. Full fuel, Full water, skiff on, net in the hold (Transiting)**

325 gal diesel port tank	325.00	7.2500	2356.25	545.95	-38.94	96.49
325 gal diesel stbd tank	325.00	7.2500	2356.25	545.95	38.94	96.49
100 gal diesel day tank	100.00	7.2500	725.00	283.00	0.00	116.00
300 gal water	300.00	8.3200	2496.00	55.46	0.00	125.21
985 ft³ fish hold	0.00	64.0000	0.00	402.28	0.00	93.13
Skiff	5840.00	1.0000	5840.00	634.17	0.00	182.83
Net	5000.00	1.0000	5000.00	371	0	80.4

		LCG In from Origin	TCG In from Origin	VCG In from Origin
<b>Totals</b>	<b>92,073.94</b>	<b>337.89</b>	<b>0.00</b>	<b>113.98</b>

**5. Full fuel, Full water, skiff off, net off, tanked (Fishing)**

325 gal diesel port tank	325.00	7.2500	2356.25	545.95	-38.94	96.49
325 gal diesel stbd tank	325.00	7.2500	2356.25	545.95	38.94	96.49
100 gal diesel day tank	100.00	7.2500	725.00	283.00	0.00	116.00
300 gal water	300.00	8.3200	2496.00	55.46	0.00	125.21
985 ft³ fish hold	985.00	64.0000	63040.00	402.28	0.00	93.13
Skiff	5840.00	0.0000	0.00	634.17	0.00	182.83
Net	5000.00	0.0000	0.00	572.00	0.00	158.00

		LCG In from Origin	TCG In from Origin	VCG In from Origin
<b>Totals</b>	<b>144,273.94</b>	<b>352.89</b>	<b>0.00</b>	<b>103.25</b>

**6. Full fuel, Full water, skiff off, net on deck, tanked (Fishing)**

325 gal diesel port tank	160.00	7.2500	1160.00	545.95	-38.94	96.49
325 gal diesel stbd tank	160.00	7.2500	1160.00	545.95	38.94	96.49
100 gal diesel day tank	100.00	7.2500	725.00	283.00	0.00	116.00
300 gal water	300.00	8.3200	2496.00	55.46	0.00	125.21
985 ft³ fish hold	985.00	64.0000	63040.00	402.28	0.00	93.13
Skiff	5840.00	0.0000	0.00	634.17	0.00	182.83
Net	5000.00	1.0000	5000.00	414.8	0	80.4

	LCG	TCG	VCG
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		In from Origin	In from Origin	In from Origin
<b>Totals</b>	146,881.44	351.85	0.00	102.58

**7. Full fuel, Full water, skiff on, net on deck, full load salmon (Lowest freeboard)**

325 gal diesel port tank	325.00	7.2500	2356.25	545.95	-38.94	96.49
325 gal diesel stbd tank	325.00	7.2500	2356.25	545.95	38.94	96.49
100 gal diesel day tank	100.00	7.2500	725.00	283.00	0.00	116.00
300 gal water	300.00	8.3200	2496.00	55.46	0.00	125.21
985 ft^3 fish hold	985.00	45.0000	44325.00	402.28	0.00	93.13
Skiff	5840.00	1.0000	5840.00	634.17	0.00	182.83
Net	5000.00	1.0000	5000.00	572.00	0.00	158.00

		LCG	TCG	VCG
		In from Origin	In from Origin	In from Origin
<b>Totals</b>	136,398.94	366.19	0.00	110.05