

Config 1, Long Range Open ocean, science or oil

No sonar, no whisker box

Whiskerbox, C-DUSBL, 10 kHz modem/receive array, 900 kHz, Avi Beacon, short antenna, camera

Freshwater in Great Lakes requires removal of camera and addition of 100m foam packs

Whiskerbox, C-DUSBL, 10 kHz modem/receive array, 900 kHz, Avi Beacon, short antenna

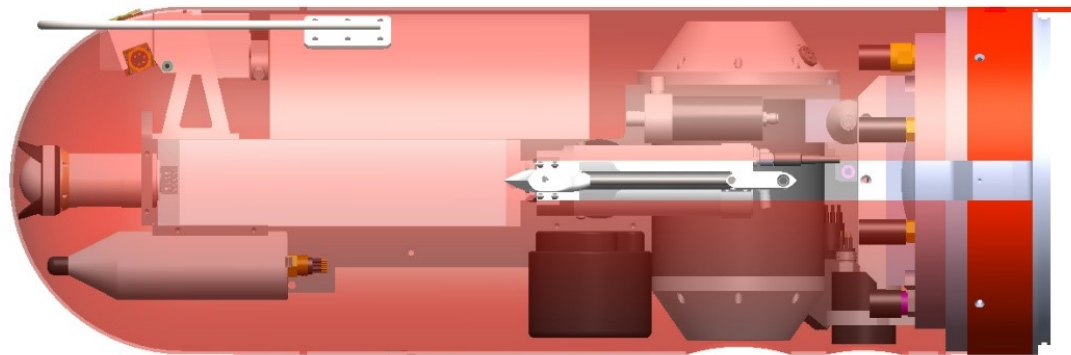
No Chelsea, Soundscape, camera,

Downward looking Norbit WBMS, INS, 10 kHz modem/receive array, Tall antenna, Soundscape

No Chelsea,, or camera

Name	Description	Example	Sensors:																	
			Seabird CTD/DO	SeaOWL	PAR	Up/dowl DVL	10 kHz A-coms	Whiskerbox	DUSBL	Multibeam	INS	IP Camera	tall antenna	Short Antenna	900 Hz A-nav	Chelsea UV	AviBeacon	Soundscape		
Config 1	Open ocean Sci/oil	Squid cruise & Santa Barbara	x	x	x	x	x					x	x			x		x	xx long nose	
Config 2	Under-ice Long Range	Great Lakes, Barrow	x	x	x	x	x	x	x			x		x	x	x	x		xx long nose	
Config 3	Under-ice mapping		x	x	x	x	x	x	x	x	x			x	x		x			
Config 4	Seafloor mapping		x	x	x	x	x			x	x		x							
* INS, Backseat Computer, 10 kHz Micromodem and 900 Hz micromodem are all installed inside Stella's hull																				
** Upward DVL is only used for under-ice																				
Name	Description	Example	Sensors:																	
			Seabird CTD/DO	SeaOWL	PAR	Up/dowl DVL	10 kHz A-coms	Whiskerbox	DUSBL			GoPro Camera	tall antenna	Short Antenna	900 Hz A-nav		AviBeacon			
Config 1	Open ocean science	Squid cruise, Santa Barbara	x	x	x	x	x					x	x						- shorter nose	
Config 2	Under-ice Long Range	Great Lakes, Barrow	x	x	x	x	x	x	x			x		x	x		x		- medium nose with cutouts	

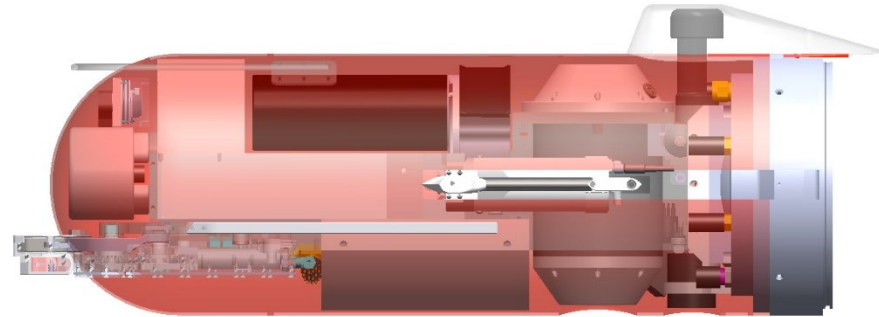
Config 1: Long Range Open Ocean



Core Science: CTD, DO, PAR, Chl/OBS/Oil
Camera
Chelsea UV oil

Config 1, open ocean science		Components added				Components removed			
	Displacement	weight (lbs)	Net buoyancy (lb)	Net Buoyancy (kg)		Displacement	weight	Net buoyancy (lb)	Net Buoyancy (kg)
Baseline is existing nose, with 1.76lbs (800g) of ballast weights									
minus existing foam			0	0		14.6	5.4	9.2	4.1768
Remove whiskerbox						7.8	12.7	-4.9	-2.2246
add CTD-DO and pump			-0.88	-0.39952					
add BSC in hull		1	-1	-0.454				0	0
Add 900 Hz in hull		1	-1	-0.454				0	0
add INS (Phins C3) in hull			-3.7	-1.6798				0	0
add soundscape								0	0
Add top foam	7.6	2.6	5	2.27				0	0
add side foam	5.2	1.8	3.4	1.5436				0	0
add front foam	17.3	6	11.3	5.1302				0	0
add longer shell		1	-1	-0.454				0	0
			0	0				0	0
			0	0				0	0
			0	0				0	0
			0	0				0	0
			0	0				0	0
			12.12	5.50248				4.3	1.9522
Net change:	7.82								

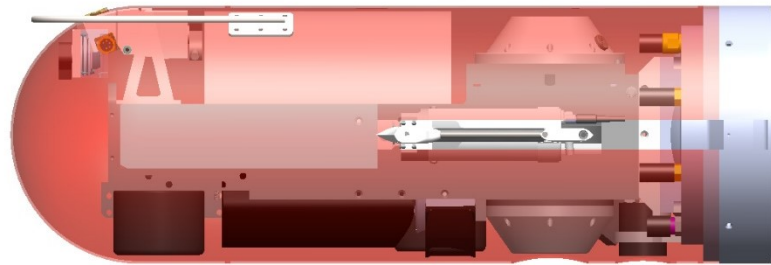
Config 3: Under-ice Mapping



Core Science: CTD, DO, ~~PAR~~, Chl/OBS/Oil
Line Capture with Acoustic Homing
900 Hz Long Range Navigation
Upward looking Multibeam mapping
Avalanche Beacon
Short Antenna

Config 3, under-ice mapping	Components added				Components removed			
	Displacement	weight (lbs)	Net buoyancy (lb)	Net Buoyancy (kg)	Displacement	weight	Net buoyancy (lb)	Net Buoyancy (kg)
Baseline is existing nose, with 1.76lbs (800g) of ballast weights								
minus existing foam			0	0	14.6	5.4	9.2	4.1768
remove al whiskers			0	0	0.254	0.66	-0.406	-0.184324
add CTD-DO and pump			-0.88	-0.39952				0
add BSC in hull		1	-1	-0.454			0	0
Add 900 Hz in hull		1	-1	-0.454				
add INS (Phins C3) in hull		3.7	-3.7	-1.6798			0	0
add G-10 whiskers	0.254	0.44	-0.186	-0.084444			0	0
add avi-beacon								
add UV sensor	1.43	1.76	-0.33	-0.14982				0
Add bottom foam	7.8	2.6	5.2	2.3608			0	0
add side foam	5.2	1.8	3.4	1.5436			0	0
add nose foam2	14	5	9	4.086				
add longer shell		1	-1	-0.454			0	0
add C-DUSBL			0	0			0	0
			0	0			0	0
			0	0			0	0
		18.3	9.504	4.314816			8.794	3.992476
Net change:	0.71							
	*Positive is more buoyant							

Config 4: Seafloor Mapping



Core Science: CTD, DO, PAR, Chl/OBS/Oil
 Norbit Narrow Beam Multibeam Mapping Sonar
 Phins C3 INS
 10 kHz Acomms and LBL
 Tall Antenna

Config 4 Multibeam	Components added				Components removed			
	Displacement	weight (lbs)	Net buoyancy (lbs)	Net Buoyancy (kg)	Displacement	weight	Net buoyancy (lb)	Net Buoyancy (kg)
Baseline is existing nose, with 1.76lbs (800g) of ballast weights								
minus existing foam			0	0	14.6	5.4	9.2	4.1768
remove al whiskers			0	0	0.254	0.66	-0.406	-0.184324
add CTD-DO and pump			-0.88	-0.39952				0
add BSC in hull		1	-1	-0.454			0	0
Add 900 Hz in hull		1	-1	-0.454			0	0
add INS (Phins C3) in hull			-3.7	-1.6798			0	0
add G-10 whiskers	0.254	0.44	-0.186	-0.084444			0	0
add 1 deg WBMB head	6.17	11.25	-5.08	-2.30632			0	0
Add top foam	15.2	2.6	12.6	5.7204			0	0
add side foam	5.2	1.8	3.4	1.5436			0	0
front foam			8					
			0	0			0	0
			0	0			0	0
			0	0			0	0
			0	0			0	0
			0	0			0	0
			0	0			0	0
			12.154	1.885916			8.794	3.992476
Net change:	3.36							