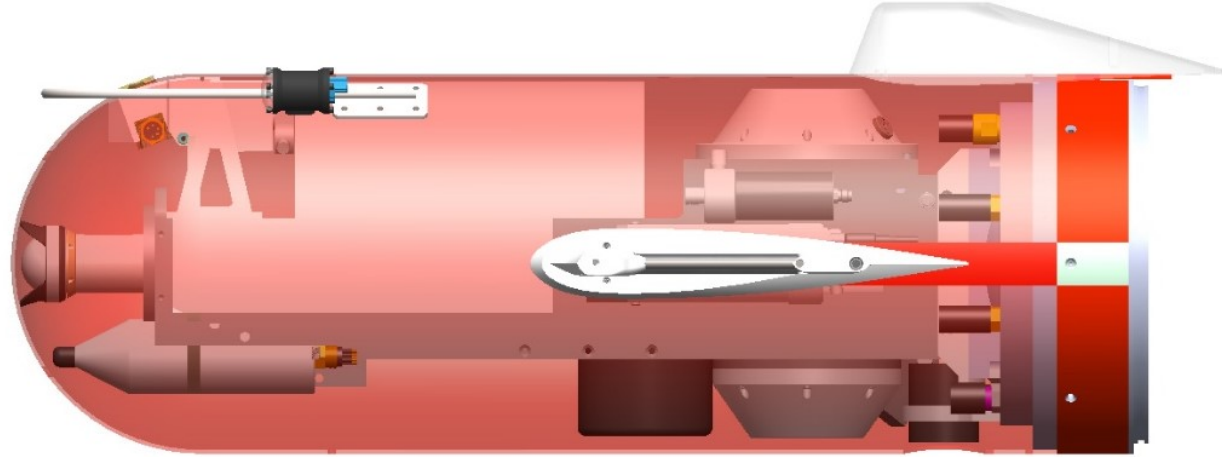


Name	Description	Example	Sensors:																	
			Seabird CTD/DO	SeaOWL	PAR	Up/dowl DVL	10 kHz A-coms	Whiskerbox	DUSBL	Multibeam	INS	IP Camera	tall antenna	Short Antenna	900 Hz A-nav	Chelsea UV	AviBeacon	Soundscape		
Config 1	Open ocean Sci/oil	Squid cruise & Santa Barbara	x	x	x	x	x					x	x			x		x	xx long nose	
Config 2	Under-ice Long Range	Great Lakes, Barrow	x	x	x	x	x					x		x	x	x	x		xx long nose	
Config 3	Under-ice mapping		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	

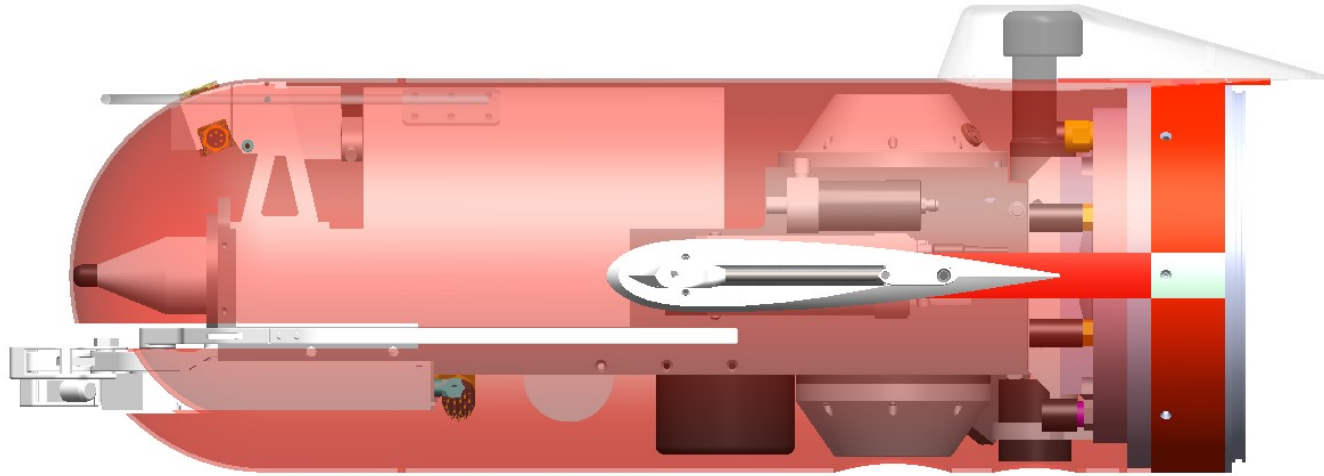
Config 1: Long Range Open Ocean



Core Science: CTD, DO, PAR, Chl/OBS/Oil
 Camera
 Soundscape
 Chelsea UV oil
 10 kHz Comms/Nav with receive array in tail
 Optional INS

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				0	0
add camera	0.55	1.4	-0.85	-0.3859					
add lights	0.225	0.46	-0.235	-0.10669					
Add top foam	14.6	5.4	9.2	4.1768				0	0
add side foam	5.2	1.8	3.4	1.5436				0	0
add longer shell		1	-1	-0.454				0	0
			3.935	1.78649				4.3	1.9522
Net change:	-0.365								

Config 2: Long Range Under-ice

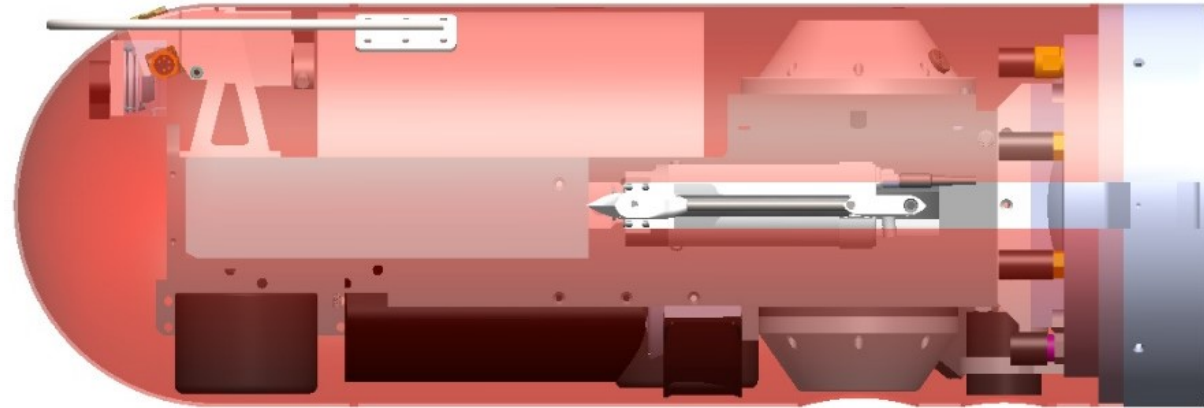


- Core Science: CTD, DO, PAR, Chl/OBS/Oil
- Line Capture with Acoustic Homing
- 10 kHz Comms/Nav with receive array in tail
- 900 Hz Long Range Navigation
- Camera
- Chelsea UV oil
- Avalanche Beacon
- Short Antenna

Config 2, under-ice LR		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	Net Buoyancy (kg)
add CTD-DO and pump			-0.88	-0.39952				0	0
add BSC in hull		1	-1	-0.454			0	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	0
add avi-beacon	1.4	1.1	0.3	0.1362				0	0
add UV sensor	1.43	1.76	-0.33	-0.14982				0	0
add soundscape	1.1	1.1	0	0			0	0	
add lights	0.225	0.46	-0.235	-0.10669					
Add top foam	14.6	5	9.6	4.3584			0	0	0
add side foam (2)	5.2	1.8	3.4	1.5436			0	0	0
add front foam	8.2	3	5.2	2.3608			0	0	0
add longer shell		1	-1	-0.454			0	0	0
		17.22	10.355	4.70117			9.2	4.1768	1.8962672
									0
Net change:	1.155								1.8962672
	*Positive is more buoyant								1.8962672

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 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
		16.54	9.834	4.464636			8.794	3.992476
Net change:	1.04							
	*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
 Camera?

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 whiskerbox					7.8	12.7	-4.9	-2.2246
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 1 deg WMB head	6.17	11.25	-5.08	-2.30632			0	0
Add top foam	14.6	5.4	9.2	4.1768			0	0
add side foam	5.2	1.8	3.4	1.5436			0	0
front foam	8.2	3	5.2	2.3608				
			6.14	2.78756			4.3	1.9522
Net change:	1.84							
*Positive is more buoyant								