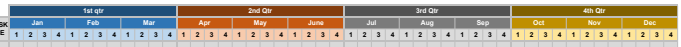
MBARI - WBS

PROJECT TITLE	Sample	PRINCIPAL INVESTIGATOR	Andrea Fassbender
PROJECT MANAGER		DATE - VERSION	13 April 2017 - Ver. 1

WBS NUMBER	TASK TITLE	TASK RESOURCES	TECHNICIAN RESOURCES	MACHINE SHOP	DURATION	PCT OF TASK COMPLETE
1	Project Requirements				WKS	
1.1	Assemble requirements and verify					0%
1.1.1	Decision on Equilibration vs Extraction	ME, EE, SE, SciTech			2	0%
1.2	Design new system architecture block diagram	ME, EE, SE, SciTech			4	0%
1.3	Concept of operations					0%
1.3.1	Mooring opertaions	ME, EE, SE, SciTech				0%
1.3.2	Wave glider operations	ME, EE, SE, SciTech				0%
1.4	Build system engineering specifications					0%
1.4.1	Detailed Techical Specifications	ME, EE, SE, SciTech				0%
						0%
2	Concept Design					
2.1	Systems block diagram - updated	ME, EE, SE, SciTech				0%
2.2	Research Components					0%
2.2.1	Valves	ME, SciTech				0%
2.2.2	Computer	EE, SE				0%
2.2.3	Communications	EE, SE				0%
2.2.4	Wave glider available configurations (w power)	ME, EE				0%
2.2.5	Components still TBD for eval	ME, EE, SE, SciTech				0%
2.3	Revised system documents					0%
2.3.1	Power budget calcs/spreadsheet	ME, EE, SE				0%
2.3.2	System weight and balance spreadsheet	ME, EE, SE, SciTech				0%
2.3.3	Revised System Specifications	ME, EE, SE, SciTech				0%
2.4	PreliminaryTest Plans					0%
2.4.1	Bench testing	ME, EE, SE, SciTech				0%
2.4.2	Tank testing	ME, EE, SE, SciTech				0%
2.4.3	At sea testing	ME, EE, SE, SciTech				0%
2.5	Concept design review					0%
2.5.1	Science slides	Sci Tech w/ PI				0%
2.5.2	Integrated System design	ME, EE, SE, SciTech				0%
2.5.3	ME detail slides	ME				0%
2.5.4	EE detail slides	EE				0%
2.5.5	SE detail slides	SE				0%
						0%
3	Preliminary Design					
3.1	Systems block diagram - updated					0%
3.2	Research Components					0%
3.2.1	Valves	ME, SciTech				0%
3.2.2	Computer	EE, SE				0%
3.2.3	Communications	EE, SE				0%
3.2.4	Wave glider available configurations (w power)	ME, EE, SE, SciTech				0%
3.2.5	Components still TBD for eval	ME, EE, SE, SciTech				0%
3.3	Revised system documents					0%
3.3.1	Power budget calcs/spreadsheet	ME, EE, SE, SciTech				0%
3.3.2	System weight and balance spreadsheet	ME, EE, SE, SciTech				0%
3.3.3	Revised System Specifications	ME, EE, SE, SciTech				0%
3.4	Equilibrator / Extractor Design					0%
3.4.1	Equilibrator / Extractor Tube Design	ME, SciTech				0%
3.4.2	Intake design	ME, SciTech				0%
3.4.3	Air Sampler Design	ME, SciTech				0%
3.4.4	Internal Flow Design	ME, SciTech				0%
3.4.4	Licor 4924/80 Purchase (or alternative)	Sci Tech				0%
3.5	Commnications Sub-system Design					0%
3.5.1	Communications Housing Design	ME				0%
3.5.2	Intrenal Electronics - Wiring Diagram	EE				0%
3.5.3	Internal Electronics Rack	ME, EE				0%
3.5.4	Communicaions Elex Purchase w. Antennea	EE, SE				0%
3.5.5	Connectors Purchase	ME, EE				0%
3.6	Main Electronics Design					0%
3.6.1	Housing	ME				0%
3.6.2	Comonent rack	ME, EE				0%
3.6.3	Computer Selection	EE, SE				0%
3.6.4	Power Supply (possible custom for fit and power)	EE, SE(maybe)				0%
3.6.4	Connectors Purchase	ME, EE				0%
3.7	Power System Design					0%
3.7.1	Battery Selection	ME, EE, SE				0%
3.7.2	Charging System	ME, EE, SE				0%
3.7.3	Housing	ME				0%
3.7.4	Comonent rack	ME, EE				0%
3.7.5	Computer Selection and purchase	EE, SE				0%
3.7.6	Power Management Board	EE, SE(maybe)				0%
3.7.7	Connectors Purchase	ME, EE				0%
3.8	Calibration System					0%
3.8.1	Bench Test of Licor stability with Temp	Me, Sci Tech				0%
3.8.2	Results into look up table for SE to implement (TBD	ME, SciTech				0%
3.8.3	Deisng of Calibration Gas system	ME				0%
3.8.4	Purchase gas tank	SciTech				0%
3.8.5	Purchase gas components	SciTech				0%
3.9	Preliminary Design Review					0%
3.9.1	Science slides	Sci Tech w/ PI				0%
3.9.2	Integrated System design	ME, EE, SE, SciTech				0%
3.9.3	ME detail slides	ME				0%
3.9.4	EE detail slides	EE				0%
3.9.5	SE detail slides	SE				0%
3.9.6	Updated Test Plans	ME, EE, SE, SciTech				0%
3.1	Purchase long lead items	ME, EE, SE, SciTech				0%
						0%
4	Critical Design Update Drawings and Build					
4.1	Systems block diagram - update per Prelim review					0%
4.2	Purchase Components					0%
4.2.1	Valve(s)	ME, SciTech				0%
4.2.2	Computer	EE, SE				0%
4.2.3	Communications	EE, SE				0%
4.2.4	Components still TBD for assembly and test	ME, EE, SE, SciTech				0%
4.2.5	Materials for build, assembly and test	ME, EE, SE, SciTech				0%
4.3	Revise system documents per Prelim review					0%
4.3.1	Power budget calcs/spreadsheet	ME, EE, SE, SciTech				0%
4.3.2	System weight and balance spreadsheet	ME, EE, SE, SciTech				0%
4.3.3	Revised System Specifications	ME, EE, SE, SciTech				0%
4.4	Equilibrator / Extractor Build					0%
4.4.1	Equilibrator / Extractor Tube Build	ME, SciTech				0%
4.4.2	Intake Build	ME, SciTech				0%
4.4.3	Air Sampler Build	ME, SciTech				0%
4.4.4	Internal Flow Build	ME, SciTech				0%
4.5	Commnications Sub-system Design					0%
4.5.1	Communications Housing Build	ME				0%
4.5.2	Intrenal Electronics - Wiring Diagram Update	EE				0%
4.5.3	Internal Electronics Rack Build	ME, EE				0%
4.5.4	Communicaions Elex w. Antennea Test	EE, SE				0%
4.5.5	Wiring Harness Build	ME, EE				0%
4.6	Main Electronics Build					0%
4.6.1	Housing Build	ME				0%
4.6.2	Comonent rack Build	ME, EE				0%
4.6.3	Computer - Bench test	EE, SE				0%
4.6.4	Power Supply - Build or Buy	EE, SE(maybe)				0%
4.6.4	Wiring Harness Build	ME, EE				0%
4.7	Power System Build					0%
4.7.1	Battery Purchase (may be done if long lead)	ME, EE, SE				0%
4.7.2	Charging System - Build or Buy	ME, EE, SE				0%
4.7.3	Housing Build	ME				0%
4.7.4	Comonent rack build	ME, EE				0%
4.7.5	Computer - Bench test	EE, SE				0%
4.7.6	Power Management Board	EE, SE(maybe)				0%
4.7.7	Wiring Harness Build	ME, EE				0%
4.8	Calibration System					0%
4.8.1	Bench Test sub-system and environmental tests	Me, Sci Tech				0%
4.8.2	ResultsSe code and test (TBD)	ME, SciTech				0%
4.8.3	Assemble Gas system components	ME				0%
4.8.4	Bench Test of Calibration Gas system	SciTech				0%
4.9	Critical Design Review					0%
4.9.1	Science slides	Sci Tech w/ PI				0%
4.9.2	Integrated System design	ME, EE, SE, SciTech				0%
4.9.3	ME detail slides	ME				0%
4.9.4	EE detail slides	EE				0%
4.9.5	SE detail slides	SE				0%
4.9.6	Updated Test Plans	ME, EE, SE, SciTech				0%
						0%
5	System Integration and Test					
5.1	Full System Integration	ME, EE, SE, SciTech				0%
5.2	Dry Lab Testing - verify operation and software	ME, EE, SE, SciTech				0%
5.3	Wet Testing - likely test in tank	ME, EE, SE, SciTech				0%
5.4	Small Boat Test - overboard in sea water	ME, EE, SE, SciTech				0%
5.5	System Integration to test Mooring					0%
5.5.1	Reconfigure for Mooring Space (TBD)	ME, EE, SE, SciTech				0%
5.5.2	Dry Test	ME, EE, SE, SciTech				0%
5.5.3	Wet Test - test tank or dock	ME, EE, SE, SciTech				0%
5.5.4	Load for deployment	ME, EE, SE, SciTech				0%
5.5.5	At sea deployment - duration ~ 6 mos.	ME, EE, SE, SciTech				0%
						0%
6	Test Results Reporting					
6.1.	System Technical Publication	ME, EE, SE, SciTech				0%
6.2	System Science Publication	ME, EE, SE, SciTech				0%
						0%
7	Future Proposal - Wave Glider Deployment					
7.1	Proposal Abstract	ME, EE, SE, SciTech				0%
7.2	Full Proposal	ME, EE, SE, SciTech				0%
						0%