

PROJECT TITLE
PROJECT MANAGER

PRINCIPAL INVESTIGATOR	Andrea Fassbender
DATE - VERSION	13 April 2017 - Ver.

WBS NUMBER		TASK TITLE	TASK RESOURCES	TECHNICIAN RESOURCES	MACHINE SHOP	DURATION	PCT OF TASK COMPLETE	1st Qtr												2nd Qtr				3rd Qtr				4th Qtr																													
								Jan			Feb			Mar			Apr			May			June			Jul			Aug			Sep			Oct			Nov			Dec																
								1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3																	
Project Requirements								WBS																																																	
1.1	Assesment requirements and verify							0%																																																	
1.1.1	Decision on Equalization vs Extraction	ME, EE, SE, So/Tech				2		0%																																																	
1.2	Design new system architecture block diagram	ME, EE, SE, So/Tech				4		0%																																																	
1.3	Concept of operations							0%																																																	
1.3.1	Mooing operations	ME, EE, SE, So/Tech						0%																																																	
1.3.2	Waves glider operations	ME, EE, SE, So/Tech						0%																																																	
1.4	Build system engineering specifications							0%																																																	
1.4.1	Detailed Technical Specifications	ME, EE, SE, So/Tech						0%																																																	
2	Concept Design							0%																																																	
2.1	Systems block diagram - updated	ME, EE, SE, So/Tech						0%																																																	
2.2	Research Components							0%																																																	
2.2.1	Valves	ME, So/Tech						0%																																																	
2.2.2	Computer	EE, SE						0%																																																	
2.2.3	Communications	EE, SE						0%																																																	
2.2.4	Waves glider available configurations (w power)	ME, EE						0%																																																	
2.2.5	Components all TBD for eval	ME, EE, SE, So/Tech						0%																																																	
2.3	Revised system documents							0%																																																	
2.3.1	Power budget calculations/masterlist	ME, EE, SE						0%																																																	
2.3.2	System weight and balance spreadsheet	ME, EE, SE, So/Tech						0%																																																	
2.3.3	Revised System Specifications	ME, EE, SE, So/Tech						0%																																																	
2.4	Preliminary Test Plans							0%																																																	
2.4.1	Bench testing	ME, EE, SE, So/Tech						0%																																																	
2.4.2	Test testing	ME, EE, SE, So/Tech						0%																																																	
2.4.3	At sea testing	ME, EE, SE, So/Tech						0%																																																	
2.5	Concept design review							0%																																																	
2.5.1	Science slides	So/Tech w/ PI						0%																																																	
2.5.2	Integrated System design	ME, EE, SE, So/Tech						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%																																																	
3	Preliminary Design							0%																																																	
3.1	Systems block diagram - updated							0%																																																	
3.2	Research Components							0%																																																	
3.2.1	Valves	ME, So/Tech						0%																																																	
3.2.2	Computer	EE, SE						0%																																																	
3.2.3	Communications	EE, SE						0%																																																	
3.2.4	Waves glider available configurations (w power)	ME, EE, SE, So/Tech						0%																																																	
3.2.5	Components all TBD for eval	ME, EE, SE, So/Tech						0%																																																	
3.3	Revised system documents							0%																																																	
3.3.1	Power budget calculations/masterlist	ME, EE, SE, So/Tech						0%																																																	
3.3.2	System weight and balance spreadsheet	ME, EE, SE, So/Tech						0%																																																	
3.3.3	Revised System Specifications	ME, EE, SE, So/Tech						0%																																																	
3.4	Equalizer / Extractor Design							0%																																																	
3.4.1	Equalizer / Extractor Tube Design	ME, So/Tech						0%																																																	
3.4.2	Intake design	ME, So/Tech						0%																																																	
3.4.3	Air Sample Design	ME, So/Tech						0%																																																	
3.4.4	Internal Flow Design	ME, So/Tech						0%																																																	
3.4.5	Loop #0002 Purchase (or alternative)	So/Tech						0%																																																	
3.5	Communications Sub-system Design							0%																																																	
3.5.1	Communications Housing Design	ME						0%																																																	
3.5.2	Internal Electronics - Wiring Diagram	EE						0%																																																	
3.5.3	Internal Electronics Rack	ME, EE						0%																																																	
3.5.4	Communications Elex Purchase w. Antennae	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	Component rack	ME, EE						0%																																																	
3.6.3	Computer Selection	EE, SE						0%																																																	
3.6.4	Power Supply (purchase custom for 0 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	Component 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 Loz stability with Temp	Ma, So/Tech						0%																																																	
3.8.2	Results into look up table for SE to implement (TBD)	ME, So/Tech						0%																																																	
3.8.3	Design of Calibration Gas system	ME						0%																																																	
3.8.4	Purchase gas tank	So/Tech						0%																																																	
3.8.5	Purchase gas components	So/Tech						0%																																																	
3.9	Preliminary Design Review							0%																																																	
3.9.1	Science slides	So/Tech w/ PI						0%																																																	
3.9.2	Integrated System design	ME, EE, SE, So/Tech						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, So/Tech						0%																																																	
3.1	Purchase long lead items	ME, EE, SE, So/Tech						0%																																																	
4	Critical Design Update Drawings and Build							0%																																																	
4.1	Systems block diagram - update per Prelim review							0%																																																	
4.2	Purchase Components							0%																																																	
4.2.1	Valves(s)	ME, So/Tech						0%																																																	
4.2.2	Computer	EE, SE						0%																																																	
4.2.3	Communications	EE, SE						0%																																																	
4.2.4	Components all TBD for assembly and test	ME, EE, SE, So/Tech						0%																																																	
4.2.5	Materials for build, assembly and test	ME, EE, SE, So/Tech						0%																																																	
4.3	Revised system documents per Prelim review							0%																																																	
4.3.1	Power budget calculations/masterlist	ME, EE, SE, So/Tech						0%																																																	
4.3.2	System weight and balance spreadsheet	ME, EE, SE, So/Tech						0%																																																	
4.3.3	Revised System Specifications	ME, EE, SE, So/Tech						0%																																																	
4.4	Equalizer / Extractor Build							0%																																																	
4.4.1	Equalizer / Extractor Tube Build	ME, So/Tech						0%																																																	
4.4.2	Intake Build	ME, So/Tech						0%																																																	
4.4.3	Air Sample Build	ME, So/Tech						0%																																																	
4.4.4	Internal Flow Build	ME, So/Tech						0%																																																	
4.4.5	Communications Sub-system Design							0%																																																	
4.4.5.1	Communications Housing Build	ME						0%																																																	
4.4.5.2	Internal Electronics - Wiring Diagram Update	EE						0%																																																	
4.4.5.3	Internal Electronics Rack Build	ME, EE						0%																																																	
4.4.5.4	Communications Elex w. Antennae Test	EE, SE						0%																																																	
4.4.5.5	Wiring Harness Build	ME, EE						0%																																																	
4.4.6	Main Electronics Build							0%																																																	
4.4.6.1	Housing Build	ME						0%																																																	
4.4.6.2	Component rack Build	ME, EE						0%																																																	
4.4.6.3	Computer - Bench test	EE, SE						0%																																																	
4.4.6.4	Power Supply - Build or Buy	EE, SE(maybe)						0%																																																	
4.4.6.4	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	Component 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	EE, SE						0%																																																	
4.8	Calibration System							0%																																																	
4.8.1	Bench Test sub-system and environmental tests	Ma, So/Tech						0%																																																	
4.8.2	Reusable code and test (TBD)	ME, So/Tech						0%																																																	
4.8.3	Assemble Gas system components	ME, So/Tech						0%																																																	
4.8.4	Bench Test of Calibration Gas system	So/Tech						0%																																																	
4.9	Critical Design Review							0%																																																	
4.9.1	Science slides	So/Tech w/ PI						0%																																																	
4.9.2	Integrated System design	ME, EE, SE, So/Tech						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, So/Tech						0%																																																	
5	System Integration and Test							0%																																																	
5.1	Full System Integration	ME, EE, SE, So/Tech						0%																																																	
5.2	Dry Lab Testing - verify operation and software	ME, EE, SE, So/Tech						0%																																																	
5.3	Wet Testing - leak test in tank	ME, EE, SE, So/Tech						0%																																																	
5.4	Small Boat Test - overboard in sea water	ME, EE, SE, So/Tech						0%																																																	
5.5	System integration to test mooring							0%																																																	
5.5.1	Reconfigure for Mooring Space (TBD)	ME, EE, SE, So/Tech						0%																																																	
5.5.2	Dry Test	ME, EE, SE, So/Tech						0%																																																	
5.5.3	Wet Test - wet tank or dock	ME, EE, SE, So/Tech						0%																																																	
5.5.4	Load for deployment	ME, EE, SE, So/Tech						0%																																																	
5.5.5	At sea deployment - duration ~ 6 mos	ME, EE, SE, So/Tech						0%																																																	
6	Test Results Reporting							0%																																																	
6.1	System Technical Publication	ME, EE, SE, So/Tech						0%																																																	
6.2	System Science Publication	ME, EE, SE, So/Tech						0%																																																	
7	Future Proposal - Waves Glider Deployment							0%																																																	
7.1	Proposal Abstract	ME, EE, SE, So/Tech						0%																																																	
7.2	Full Proposal	ME, EE, SE, So/Tech						0%																																																	