

	Labor (Hours)															Material	Outside Srv	Ship Time			Sub-totals	
Task	Hamilton	Cazenave	Erickson	ME	Jensen	Martin	Klimov	EE	Henthorn	SE	ME Tech	EE Tech	Machinist	Divers				Ship	Time	Cost	Expense	Labor
Station Keeping Developments																						
Refine 2016 design as needed	16	40	40		16	16	16		20		16		40			\$10,000						
Develop adjustable stop hardware	16	40	40		16	16			20				40			\$10,000						
Integrate adjustable stop	8	16	16								16	8				\$2,000						
Add buoy controller navigation and control features	16								40													
Integation and test (in Lab)	40	40	40						16													
Prepare report/presentation for LRI	16																					
Work with LRI on future plans as needed	16																					
Task Total	128	136	136	400	32	32	16	80	96	96	32	8	80	0	\$22,000	\$0					\$22,000	696
Flapping Foil Test Deployments (2)																						
Deployment Preparation	16	32	16		8	8	8		8		32	8				\$2,000						
Deployment	16	16	16			16			8		32			16				Shana Rae	4 Days	\$8,000		
Monitoring/Serviceing	8	8									8			8				Paragon	2 Half Days			
Recovery	16	32	16			16			8		32			16				Shana Rae	4 Days	\$8,000		
Cleanup after Recovery	8	16									16											
Deployment Data Analysis	16																					
Task Total	80	104	48	232	8	40	8	56	24	24	120	8		40	\$2,000	\$0				\$16,000	\$18,000	480
Develop Bi-directional Power Electronics																						
Build second power converter for lab	8				16	8						16	8			\$1,000						
Modify power electronics as needed	16				80								8			\$2,000						
Modify power converter firmware as needed	100				16				16			4										
Testing in Lab	40				40				16													
Implement buoy controller commands	8								16													
Modify deployed power electronics as needed	8				16							16				\$500						
PTO Testing on test-machine	40	8			16							8										
Task Total	220	8	0	228	184	8	0	192	48	48	0	52	8	0	\$3,500	0					\$3,500	528
Rebuild Compliant Plate																						
Fabricate needed components	4	8	12										40			\$5,000	\$10,000					
Assembly		8	8								16											
Task Total	4	16	20	40	0	0	0	0	0	0	16	0	40	0	\$5,000	\$10,000					\$15,000	96
2017-2018 Winter Deployment			20				40		0													
Deployment Preparation	8	16	8		4	4	4		16		16	4				\$2,000						
Build New Tether	8	8															\$2,000					
Deployment	8	16	8		8	8			8		16			8				Shana Rae	2 Days	\$4,000		
Monitoring/Serviceing	12	12				8					8			12				Paragon	4 Half Days			
Deployment Data Analysis	8																					
Task Total	44	52	16	112	12	20	4	36	24	24	40	4		20	\$2,000	\$2,000				\$4,000	\$8,000	236
Lithium Battery Investigations																						
Evaluation of Commercially Available Options	8				40		40				16	4				\$3,000						
Prototyping	8				40		40				8											
Task Total	16	0	0	16	80	0	80	160	0	0	24	4			\$3,000						\$3,000	204
	Labor (Hours)															Material	Outside Srv	Ship Time				
				ME			EE			SE	ME Tech	EE Tech	Machinist	Divers				Ship	Time	Cost		
Totals	492	316	220	1028	316	100	108	524	192	192	232	76	128	60	\$37,500	\$12,000				\$20,000	\$69,500	2240