

rb1904-SE |  
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Event	dateTimeUTC▲	GPS_Time	Instrument	Action	Transect	Station	Cast	Latitude	Longitude	Seafloor	Author	Comment
20190516.1427.001	20190512.1001	2019/05/12 10:01:42	Other	start	1a	NaN	NaN	41.523848	-70.672309		wZhang	Transect 1a (Southward) starts
20190519.2015.001	20190512.1030	2019/05/12 10:02:44	DAVPR	onCTD	NaN	NaN	NaN	41.523848	-70.672308		tCrockford	
20190519.2016.001	20190512.1030	2019/05/12 10:02:44	SUNA V2	onCTD	NaN	NaN	NaN	41.523848	-70.672308		tCrockford	
20190512.1419.001	20190512.1340	2019/05/12 10:02:44	Ship	startCruise	NaN	NaN	NaN	41.523848	-70.672308		wZhang	leaving Woods Hole
20190512.1745.001	20190512.1420	2019/05/12 10:02:44	Underway Science Seawater Diaphragm	start	NaN	NaN	NaN	41.523848	-70.672308		tCrockford	
20190512.1746.001	20190512.1431	2019/05/12 10:02:44	IFCB continuous	start	NaN	NaN	NaN	41.523848	-70.672308		tCrockford	
20190512.1825.001	20190512.1439	2019/05/12 17:54:36	Attune Flowcytometer	start	NaN	NaN	NaN	40.789505	-70.840453		tCrockford	
20190512.1832.001	20190512.1510	2019/05/12 10:02:44	EIMS	start	NaN	NaN	NaN	41.523848	-70.672308		zSandwith	
20190512.1827.001	20190512.1520	2019/05/12 10:02:44	Underway Science Seawater Impeller	start	NaN	NaN	NaN	41.523848	-70.672308		tCrockford	
20190512.1826.001	20190512.1827	2019/05/12 18:27:02	Other	start	NaN	NaN	NaN	40.688931	-70.830162		tCrockford	Knudsen turned ON
20190512.2238.001	20190512.2137	2019/05/12 21:37:06	CTD	start	1	A5	1	40.471497	-70.832841		mSwartz	First stn 73m depth
20190516.1428.001	20190512.2137	2019/05/12 21:37:06	Other	start	1b	NaN	NaN	40.471497	-70.832841		wZhang	Transect 1b (Southward) starts
20190516.1519.001	20190512.2137	2019/05/12 21:37:06	Other	end	1a	A5	NaN	40.471497	-70.832841		zSandwith	
20190512.2241.001	20190512.2205	2019/05/12 22:05:06	CTD	stop	1	A5	001	40.471297	-70.842129		mSwartz	at surface. Bottle 14 fired but not closed.
20190513.0004.001	20190512.2324	2019/05/12 23:24:06	CTD	start	1	A6	002	40.398899	-70.832548		wZhang	
20190513.0005.001	20190512.2345	2019/05/12 23:45:06	CTD	stop	1	A6	002	40.396394	-70.843113		wZhang	bottle 14 didn't fire
20190513.0909.001	20190513.0109	2019/05/13 01:09:06	CTD	start	1	A7	003	40.336526	-70.831087		wZhang	Marshall at the CTD console
20190513.0910.001	20190513.0127	2019/05/13 01:27:06	CTD	stop	1	A7	003	40.338176	-70.832086		wZhang	Marshall at the CTD console
20190513.0911.001	20190513.0248	2019/05/13 02:48:05	CTD	start	1	A8	004	40.269393	-70.831515		wZhang	Marshall at the CTD console

20190513.0911.002	20190513.0304	2019/05/13 03:04:05	CTD	stop	1	A8	004	40.270624	-70.830810		wZhang	Marshall at the CTD console
20190513.0539.001	20190513.0451	2019/05/13 04:51:51	CTD	start	1	A9	005	40.204897	-70.829902		hOliver	
20190513.0521.001	20190513.0516	2019/05/13 05:16:06	Underway Science Seawater Impeller	TOI discrete	1	A9	5	40.206399	-70.830630		zSandwith	underway surface seawater at same time as cast surface
20190513.0541.001	20190513.0516	2019/05/13 05:16:51	CTD	stop	1	A9	005	40.206466	-70.830789		hOliver	
20190519.2018.001	20190513.0600	2019/05/13 05:59:51	SUNA V2	other	NaN	NaN	NaN	40.162483	-70.829926		tCrockford	clean cable connections
20190513.0741.001	20190513.0629	2019/05/13 06:29:51	CTD	start	1	A10	006	40.137148	-70.831844		hOliver	
20190513.0742.001	20190513.0717	2019/05/13 07:17:51	CTD	stop	1	A10	006	40.139697	-70.832386		hOliver	
20190513.0902.001	20190513.0819	2019/05/13 08:19:06	CTD	start	1	A11	007	40.072937	-70.834326		wZhang	
20190513.0903.001	20190513.0836	NaN	CTD	stop	1	A11	007	NaN	NaN		wZhang	
20190513.1552.001	20190513.1013	NaN	CTD	start	1	A12	008	NaN	NaN		wZhang	
20190513.1553.001	20190513.1039	NaN	CTD	stop	1	A12	008	NaN	NaN		wZhang	PAR data wrong (calibration issue)
20190513.1555.001	20190513.1301	NaN	CTD	start	1	A13	009	NaN	NaN		wZhang	PAR calibration issue solved
20190513.1556.001	20190513.1347	NaN	CTD	stop	1	A13	009	NaN	NaN		wZhang	
20190513.1651.001	20190513.1651	2019/05/13 16:51:55	CTD	stop	1	A13	010	39.944446	-70.827264		hOliver	
20190513.1811.001	20190513.1811	NaN	CTD	start	1	A14	011	NaN	NaN		hOliver	
20190513.1858.001	20190513.1858	NaN	CTD	stop	1	A14	011	NaN	NaN		hOliver	
20190513.1644.001	20190513.1919	NaN	CTD	start	1	A13	010	NaN	NaN		wZhang	
20190513.2028.001	20190513.2028	NaN	CTD	start	1	A15	012	NaN	NaN		hOliver	
20190513.2110.001	20190513.2048	NaN	CTD	stop	1	A15	012	NaN	NaN		hOliver	PAR reading was off. Marshall is working on it.
20190516.1521.001	20190513.2320	NaN	Other	end	1b	A16	NaN	NaN	NaN		zSandwith	GPS time is 2019/05/13 23:20:00
20190516.1434.001	20190514.0124	2019/05/14 01:24:35	Other	start	2b	NaN	NaN	39.976090	-70.736974		zSandwith	Transect 2b (Northward) True GPS time is 2019/05/14 06:46:00
20190519.2021.001	20190514.0424	2019/05/14 01:24:35	SUNA V2	change configuration	NaN	NaN	NaN	39.976090	-70.736974		tCrockford	set sampling config to 5light:1dark changed from 20:1
20190519.2022.001	20190514.0458	2019/05/14 01:24:37	SUNA V2	other	NaN	NaN	NaN	39.976153	-70.736947		tCrockford	clean cable connections
20190516.1517.001	20190514.0646	2019/05/14 01:24:37	Other	end	2a	A5	NaN	39.976153	-70.736947		zSandwith	True GPS Time 2019/05/14

												06:46:00
20190514.1016.001	20190514.1016	NaN	Other	start	3	A5	NaN	NaN	NaN		wZhang	Secchi disk deployment
20190516.1439.001	20190514.1053	2019/05/14 12:46:31	Other	start	3	A5	013	40.398403	-70.831737		zSandwith	Southward True GPS Time is 2019/05/14
20190514.1255.001	20190514.1120	2019/05/14 01:24:37	CTD	stop	3	A5	013	39.976153	-70.736947		wZhang	real cast finish time: 2019/05/14 11:20:00
20190514.1252.001	20190514.1246	2019/05/14 12:46:31	CTD	start	3	A5	013	40.398403	-70.831737		wZhang	real cast time: 2019/05/14 10:53:00 (elog time wrong); before this cast, CDOM fluorometer was removed from rosette, CTD channel B7 no long receive CDOM data
20190516.1434.002	20190514.1246	2019/05/14 12:46:31	Other	end	2b	NaN	NaN	40.398403	-70.831737		zSandwith	Transect 2b (Station at A5) ends; True GPS time is 2019/05/14 10:53:00
20190514.1308.001	20190514.1308	2019/05/14 13:09:00	CTD	start	3	A6	014	40.397815	-70.831847		wZhang	
20190514.1328.001	20190514.1328	2019/05/14 13:28:20	CTD	stop	3	A6	014	40.399626	-70.833296		wZhang	zoop incubation
20190514.1359.001	20190514.1359	2019/05/14 13:59:16	MOCNESS	deploy	3	A6	NaN	40.401991	-70.830169		wZhang	zoop collection
20190514.1446.001	20190514.1446	2019/05/14 14:46:16	CTD	start	3	A6	015	40.415626	-70.817072		wZhang	zoop incubation water collection
20190514.1511.001	20190514.1511	2019/05/14 15:11:46	CTD	stop	3	A6	015	40.408421	-70.820461		zSandwith	zoop grazing water collection (14m);
20190516.2255.001	20190514.1535	2019/05/14 15:35:01	Grazing Incubation	start	3	A6	15	40.351559	-70.832875		cPetitpas	grazing incubation#2 start at 11:35 local at 56m in Front
20190514.1601.001	20190514.1601	2019/05/14 16:01:58	CTD	start	3	A7	16	40.335833	-70.832121		cXiao	c14 incubation
20190514.1622.001	20190514.1622	2019/05/14 16:22:26	CTD	stop	3	A7	16	40.335326	-70.833534		cXiao	c14 incubation
20190516.1441.001	20190514.1622	2019/05/14 16:22:31	Other	end	3	A7	016	40.335338	-70.833529		zSandwith	Transect 3 (Southward) end
20190516.1442.001	20190514.1622	2019/05/14 16:22:31	Other	start	4	A7	NaN	40.335338	-70.833529		zSandwith	Transect 4 (Northward) starts
20190516.1443.001	20190514.1750	2019/05/14 17:50:01	Other	end	4	A5	NaN	40.493328	-70.821226		zSandwith	Transect 4 (Northward)

												ends
20190516.1448.001	20190514.1750	2019/05/14 17:50:01	Other	start	5	A5	NaN	40.493328	-70.821226		zSandwith	Transect 5 (VPR-1 southward) starts
20190514.1753.001	20190514.1753	2019/05/14 17:53:31	towed VPR	deploy	5	A5	VPR1	40.499919	-70.816655		hOliver	towed VPR-1
20190516.2249.001	20190514.1803	2019/05/14 18:03:31	Grazing Incubation	stop	1	A13	10	40.491831	-70.799066		cPetitpas	grazing incubation#1 breakdown at 14:03 local
20190514.2129.001	20190514.2129	2019/05/14 21:29:01	SUNA V2	change configuration	NaN	NaN	NaN	39.936533	-70.829299		tCrockford	miliQ ref cal update SNA1227I.CAL now being used; calculate DAC analog output voltages
20190514.2352.001	20190514.2352	2019/05/14 23:52:31	towed VPR	recover	5	A18	VPR1	39.638825	-70.784498		cXiao	
20190515.0030.001	20190515.0030	2019/05/15 00:30:34	CTD	start	6	A18	17	39.621838	-70.829875		cXiao	Marshall at the CTD console
20190516.1449.001	20190515.0030	2019/05/15 00:30:34	Other	end	5	A18	NaN	39.621838	-70.829875		zSandwith	Transect 5 (VPR-1 southward) ends
20190516.1452.001	20190515.0030	2019/05/15 00:30:34	Other	start	6	A18	017	39.621838	-70.829875		zSandwith	Transect 6 (Northward) starts
20190515.0104.001	20190515.0104	2019/05/15 01:04:47	CTD	stop	6	A18	17	39.620176	-70.826474		cXiao	Marshall at the CTD console
20190515.0205.001	20190515.0205	2019/05/15 02:05:52	CTD	start	6	A17	18	39.683675	-70.829319		cXiao	Marshall at the CTD console
20190515.0243.001	20190515.0243	2019/05/15 02:43:05	CTD	stop	6	A17	18	39.683846	-70.826959		cXiao	Marshall at the CTD console
20190515.0337.001	20190515.0337	2019/05/15 03:37:25	CTD	start	6	A16	19	39.748551	-70.830547		cXiao	Marshall at the CTD console
20190515.0414.001	20190515.0414	2019/05/15 04:14:05	CTD	stop	6	A16	019	39.749555	-70.830044		zSandwith	
20190515.0523.001	20190515.0523	2019/05/15 05:23:28	CTD	start	6	A15	020	39.814948	-70.830437		zSandwith	
20190515.0557.001	20190515.0557	2019/05/15 05:57:40	CTD	stop	6	A15	020	39.815072	-70.830374		zSandwith	
20190515.0654.001	20190515.0654	2019/05/15 06:54:05	CTD	start	6	A14	021	39.880384	-70.830173		zSandwith	
20190515.0730.001	20190515.0730	2019/05/15 07:30:31	CTD	stop	6	A14	021	39.880709	-70.832327		zSandwith	
20190515.0823.001	20190515.0823	2019/05/15 08:23:46	CTD	start	6	A13	022	39.944603	-70.830942		zSandwith	
20190515.0853.001	20190515.0853	2019/05/15 08:53:03	CTD	stop	6	A13	022	39.944916	-70.830503		zSandwith	
20190515.0941.001	20190515.0941	2019/05/15 09:41:34	CTD	start	6	A12	023	40.009548	-70.829943		zSandwith	
20190515.1007.001	20190515.1007	2019/05/15 10:07:53	CTD	stop	6	A12	023	40.010103	-70.830435		zSandwith	

20190515.1008.001	20190515.1008	2019/05/15 10:09:00	Underway Science Seawater Impeller	TOI discrete	NaN	A6	14	40.010119	-70.830424		zSandwith	underway surface seawater at same time as cast surface taken 5/14/19 13:30
20190515.1010.001	20190515.1010	2019/05/15 10:10:04	Underway Science Seawater Impeller	TOI discrete	6	A12	023	40.010104	-70.830401		zSandwith	underway surface seawater at same time as cast surface taken 5/15/19 10:05 in duplicate
20190515.1102.001	20190515.1102	2019/05/15 11:02:05	CTD	start	6	A11	024	40.075603	-70.830387		zSandwith	
20190515.1120.001	20190515.1120	2019/05/15 11:20:35	CTD	stop	6	A11	024	40.075393	-70.830143		zSandwith	
20190515.1212.001	20190515.1212	2019/05/15 12:12:42	CTD	start	6	A10	025	40.137997	-70.832262		zSandwith	
20190515.1239.001	20190515.1239	2019/05/15 12:39:35	CTD	stop	6	A10	025	40.137251	-70.831761		zSandwith	
20190515.1426.001	20190515.1317	2019/05/15 13:16:56	MOCNESS	deploy	NaN	A10	3	40.143425	-70.831870		pAlatalo	
20190515.1427.001	20190515.1406	2019/05/15 14:05:56	MOCNESS	recover	NaN	A10	3	40.173879	-70.831722		pAlatalo	
20190515.1421.001	20190515.1421	2019/05/15 14:21:41	CTD	start	6	A10z	026	40.173779	-70.830423		zSandwith	zoop incubation Is actually halfway between A10 and A9; 56m water; start=15:10; stop=
20190515.1435.001	20190515.1435	2019/05/15 14:35:26	CTD	stop	6	A10z	026	40.174229	-70.830896		zSandwith	zoop incubation Is actually halfway between A10 and A9
20190516.0130.001	20190515.1510	2019/05/15 15:10:26	Grazing Incubation	start	6	A10z	026	40.198148	-70.829737		cPetitpas	grazing incubation#3 at 56m in Front
20190515.1531.001	20190515.1531	2019/05/15 15:31:48	CTD	start	6	A9	027	40.205247	-70.829214		zSandwith	
20190515.1604.001	20190515.1604	2019/05/15 16:04:04	CTD	stop	6	A9	27	40.204468	-70.830296		cXiao	Marshall at the CTD console
20190516.2300.001	20190515.1618	2019/05/15 16:17:55	Grazing Incubation	stop	3	A6	15	40.204774	-70.830092		cPetitpas	grazing incubation#2 breakdown at 12:18 local
20190515.1706.001	20190515.1706	2019/05/15 17:06:10	CTD	start	6	A8	28	40.268927	-70.831625		cXiao	Hilder at the CTD console
20190515.1736.001	20190515.1736	2019/05/15 17:36:07	CTD	stop	6	A8	28	40.268433	-70.833508		cXiao	Hilder at the CTD console
20190515.1859.001	20190515.1859	2019/05/15	CTD	start	6	A7	29	40.332970	-70.831981		cXiao	Marshall at the

		18:59:45										CTD console
20190515.1926.001	20190515.1926	2019/05/15 19:26:36	CTD	stop	6	A7	29	40.332749	-70.829547		cXiao	Hilder at the CTD console
20190515.2028.001	20190515.2028	2019/05/15 20:28:11	CTD	start	6	A6	30	40.401024	-70.830518		cXiao	Gordon at the CTD console
20190515.2049.001	20190515.2049	2019/05/15 20:49:54	CTD	stop	6	A6	30	40.401154	-70.830858		cXiao	Gordon at the CTD console
20190519.2023.001	20190515.2127	2019/05/15 21:26:56	SUNA V2	other	NaN	NaN	NaN	40.460024	-70.830819		tCrockford	clean cable connections
20190515.2141.001	20190515.2141	2019/05/15 21:41:41	CTD	start	6	A5	31	40.464729	-70.831839		cXiao	Gordon at the CTD console
20190515.2204.001	20190515.2204	2019/05/15 22:04:13	CTD	stop	6	A5	31	40.466425	-70.827074		cXiao	Gordon at the CTD console
20190516.1455.001	20190515.2228	2019/05/15 22:28:26	Other	end	6	A5	031	40.467624	-70.842698		zSandwith	Transect 6 (Northward) ends
20190516.1459.001	20190515.2228	2019/05/15 22:28:26	Other	start	7	A5	NaN	40.467624	-70.842698		zSandwith	Transect 7 (Westward) starts
20190516.1500.001	20190515.2350	2019/05/15 23:50:07	Other	end	7	EIMS W1	NaN	40.458421	-71.100498		zSandwith	Transect 7 (Westward) end
20190516.1505.001	20190515.2350	2019/05/15 23:50:07	Other	start	8	EIMS W1	NaN	40.458421	-71.100498		zSandwith	Transect 8 (Eastward) starts
20190516.0013.001	20190516.0005	2019/05/16 00:05:07	Underway Science Seawater Impeller	TOI discrete	8	NaN	NaN	40.464740	-71.044616		cXiao	
20190516.0023.001	20190516.0020	2019/05/16 00:20:07	Underway Science Seawater Impeller	TOI discrete	8	NaN	NaN	40.463911	-70.987434		cXiao	
20190516.0052.001	20190516.0034	2019/05/16 00:34:37	Underway Science Seawater Impeller	TOI discrete	8	NaN	NaN	40.462708	-70.932423		cXiao	
20190516.0053.001	20190516.0049	2019/05/16 00:49:07	Underway Science Seawater Impeller	TOI discrete	8	NaN	NaN	40.462504	-70.879469		cXiao	
20190516.0139.001	20190516.0104	2019/05/16 01:04:07	Underway Science Seawater Impeller	TOI discrete	8	NaN	NaN	40.464235	-70.824258		cXiao	
20190516.0140.001	20190516.0119	2019/05/16 01:19:22	Underway Science Seawater Impeller	TOI discrete	8	NaN	NaN	40.468204	-70.768003		cXiao	
20190516.0141.001	20190516.0134	2019/05/16 01:34:22	Underway Science Seawater Impeller	TOI discrete	8	NaN	NaN	40.474344	-70.713590		cXiao	
20190516.0211.001	20190516.0149	2019/05/16 01:49:07	Underway Science	TOI discrete	8	NaN	NaN	40.470239	-70.659753		cXiao	

			Seawater Impeller									
20190516.0213.001	20190516.0203	2019/05/16 02:03:52	Underway Science Seawater Impeller	TOI discrete	9	NaN	NaN	40.468494	-70.605661		cXiao	
20190516.1506.001	20190516.0204	2019/05/16 02:04:07	Other	end	8	EIMS E1	NaN	40.468633	-70.604799		zSandwith	Transect 8 (Eastward) ends
20190516.1507.001	20190516.0204	2019/05/16 02:04:07	Other	start	9	EIMS E1	NaN	40.468633	-70.604799		zSandwith	Transect 9 (Southward) starts
20190519.2026.001	20190516.0227	2019/05/16 02:27:07	SUNA V2	offCTD	NaN	NaN	NaN	40.416615	-70.605570		tCrockford	sensor shows unrealistic increase of surf nitrate across transect miliQ blank reading of 2uM before cleaning then 0uM post cleaning
20190516.0325.001	20190516.0237	2019/05/16 02:37:07	Underway Science Seawater Impeller	TOI discrete	9	NaN	NaN	40.389153	-70.605129		cXiao	
20190516.0327.001	20190516.0258	2019/05/16 02:58:52	Underway Science Seawater Impeller	TOI discrete	9	NaN	NaN	40.329272	-70.604902		cXiao	
20190519.2032.001	20190516.0306	2019/05/16 03:06:07	SUNA V2	update time	NaN	NaN	NaN	40.308927	-70.604211		tCrockford	2 sec slow
20190519.2034.001	20190516.0320	2019/05/16 03:20:07	SUNA V2	onCTD	NaN	NaN	NaN	40.269571	-70.606505		tCrockford	clean cable connections
20190516.0328.001	20190516.0321	2019/05/16 03:21:52	Underway Science Seawater Impeller	TOI discrete	9	NaN	NaN	40.264608	-70.606794		cXiao	
20190516.0348.001	20190516.0345	2019/05/16 03:45:07	Underway Science Seawater Impeller	TOI discrete	9	NaN	NaN	40.198268	-70.609382		cXiao	
20190516.0605.001	20190516.0408	2019/05/16 04:08:07	Underway Science Seawater Impeller	TOI discrete	9	NaN	NaN	40.131448	-70.609914		zSandwith	
20190516.0605.002	20190516.0426	2019/05/16 04:26:07	Underway Science Seawater Impeller	TOI discrete	9	NaN	NaN	40.080344	-70.612565		zSandwith	
20190516.0606.001	20190516.0453	2019/05/16 04:53:07	Underway Science Seawater Impeller	TOI discrete	9	NaN	NaN	40.004270	-70.610175		zSandwith	
20190516.0607.001	20190516.0516	2019/05/16 05:16:07	Underway Science	TOI discrete	10	NaN	NaN	39.944264	-70.610237		zSandwith	

			Seawater Impeller									
20190516.1507.002	20190516.0516	2019/05/16 05:16:07	Other	end	9	EIMS E2	NaN	39.944264	-70.610237		zSandwith	Transect 9 (Southward) end
20190516.1509.001	20190516.0516	2019/05/16 05:16:07	Other	start	10	EIMS E2	NaN	39.944264	-70.610237		zSandwith	Transect 10 (Westward) starts
20190516.0607.002	20190516.0531	2019/05/16 05:31:07	Underway Science Seawater Impeller	TOI discrete	10	NaN	NaN	39.945276	-70.666834		zSandwith	
20190516.0608.001	20190516.0546	2019/05/16 05:46:07	Underway Science Seawater Impeller	TOI discrete	10	NaN	NaN	39.945284	-70.722194		zSandwith	
20190516.0608.002	20190516.0601	2019/05/16 06:01:07	Underway Science Seawater Impeller	TOI discrete	10	NaN	NaN	39.945190	-70.775456		zSandwith	
20190516.0732.001	20190516.0617	2019/05/16 06:17:07	Underway Science Seawater Impeller	TOI discrete	10	A13	NaN	39.945076	-70.831463		zSandwith	
20190516.0732.002	20190516.0631	2019/05/16 06:31:07	Underway Science Seawater Impeller	TOI discrete	10	NaN	NaN	39.946197	-70.879664		zSandwith	
20190516.0733.001	20190516.0646	2019/05/16 06:46:07	Underway Science Seawater Impeller	TOI discrete	10	NaN	NaN	39.945420	-70.932017		zSandwith	
20190516.0734.001	20190516.0702	2019/05/16 07:02:06	Underway Science Seawater Impeller	TOI discrete	10	NaN	NaN	39.945319	-70.988781		zSandwith	
20190516.0926.001	20190516.0716	2019/05/16 07:16:52	Other	start	11	EIMS W2	NaN	39.944164	-71.040024		zSandwith	Southeastward
20190516.1509.002	20190516.0716	2019/05/16 07:16:52	Other	end	10	EIMS W2	NaN	39.944164	-71.040024		zSandwith	Transect 10 (Westward) ends
20190516.0735.001	20190516.0717	2019/05/16 07:16:52	Underway Science Seawater Impeller	TOI discrete	10	NaN	NaN	39.944164	-71.040024		zSandwith	End transect 10
20190516.1512.001	20190516.0938	2019/05/16 09:37:53	Other	end	11	A18	NaN	39.621096	-70.830920		zSandwith	Southeastward
20190516.1008.001	20190516.1008	2019/05/16 10:08:08	CTD	start	11b	A13	032	39.620047	-70.830058		zSandwith	PP cast
20190516.1046.001	20190516.1008	2019/05/16 10:08:08	CTD	stop	11b	A13	032	39.620047	-70.830058		zSandwith	
20190516.1217.001	20190516.1218	2019/05/16 12:18:02	CTD	start	11b	A18	033	39.619448	-70.828786		zSandwith	Zoop grazing collection
20190516.1221.001	20190516.1218	2019/05/16 12:18:08	CTD	stop	11b	A18	033	39.619443	-70.828771		zSandwith	



20190516.1523.001	20190516.1237	2019/05/16 12:37:53	Other	start	12	A18	032	39.629063	-70.829331		zSandwith	Transect 12 (Northward) starts
20190516.2306.001	20190516.1252	2019/05/16 12:52:53	Grazing Incubation	start	12	A18	032	39.667458	-70.829266		cPetitpas	grazing incubation#4 start at 08:53 local with surface Slope water
20190516.1429.001	20190516.1430	NaN	Other	start	2a	NaN	NaN	NaN	NaN		wZhang	Transect 2a starts on 2019/05/13 23:20:00
20190516.1450.001	20190516.1450	2019/05/16 14:50:32	CTD	start	12	A12	034	40.009801	-70.831282		zSandwith	
20190516.2310.001	20190516.1528	2019/05/16 15:27:53	Grazing Incubation	stop	6	A10	026	40.009408	-70.832388		cPetitpas	grazing incubation#3 breakdown at 11:28 local
20190516.1532.001	20190516.1532	2019/05/16 15:32:53	CTD	stop	12	A12	034	40.009228	-70.832979		wZhang	productivity cast
20190516.1834.001	20190516.1835	2019/05/16 18:35:01	Other	start	13	A5	NaN	40.473593	-70.841121		wZhang	Transect 13 (southward vpr tow-2) starts
20190516.1835.001	20190516.1835	2019/05/16 18:35:38	towed VPR	deploy	13	A5	VPR2	40.472696	-70.842001		wZhang	VPR tow-2
20190516.1916.001	20190516.1916	2019/05/16 19:17:00	Underway Science Seawater Impeller	IFCB discrete	NaN	NaN	UW1	40.383537	-70.860197		tCrockford	IFCB109 discrete off of TOI discrete tubing
20190519.2037.001	20190516.2100	2019/05/16 20:59:53	SUNA V2	other	NaN	NaN	NaN	40.152482	-70.833054		tCrockford	off CTD to do ref cal SNA1227J and DAC voltage coefficient comparisons w diff calcs result not diff
20190519.2040.001	20190516.2110	2019/05/16 21:09:53	CTD	other	NaN	NaN	NaN	40.130697	-70.832330		tCrockford	change volt6 SUNA polynomial coefficients
20190513.1558.001	20190516.2225	NaN	MOCNESS	deploy	1	A13	MOCNESS- 1	NaN	NaN		wZhang	Net 8, surface (100 micron): torn open, sample lost
20190514.1052.001	20190516.2242	NaN	Grazing Incubation	start	1	A13	10	NaN	NaN		cPetitpas	Exp 1 start 13:27 local; water from 17m on Shelf; added dilution WW and 10% treatment replicates to temp. control incubator
20190517.0023.001	20190517.0003	2019/05/17 00:03:55	towed VPR	recover	13	A16	VPR2	39.737723	-70.832118		pAlatalo	VPR Tow2

20190517.0059.001	20190517.0059	2019/05/17 00:59:48	Other	end	13	A18	NaN	39.615895	-70.828545		wZhang	Transect 13 (southward vpr tow-2 + transit) ends at A18
20190517.0101.001	20190517.0101	2019/05/17 01:01:33	Other	start	14	A18		39.615917	-70.828182		wZhang	Transect 14 (northward) starts with CTD cast 035 at A18
20190517.0107.001	20190517.0107	2019/05/17 01:07:06	CTD	start	14	A18	35	39.615918	-70.827894		cXiao	Marshall at the CTD console
20190517.0151.001	20190517.0151	2019/05/17 01:51:03	CTD	stop	14	A18	35	39.617108	-70.829424		cXiao	Marshall at the CTD console
20190517.0303.001	20190517.0241	2019/05/17 02:41:55	CTD	start	14	A17	36	39.682778	-70.829146		cXiao	Marshall at the CTD console
20190517.0328.001	20190517.0328	2019/05/17 03:28:31	CTD	stop	14	A17	36	39.682245	-70.830755		cXiao	Marshall at the CTD console
20190517.0430.001	20190517.0430	2019/05/17 04:30:42	CTD	start	14	A16	037	39.751418	-70.831501		zSandwith	
20190517.0509.001	20190517.0509	2019/05/17 05:09:25	CTD	stop	14	A16	037	39.750724	-70.829744		zSandwith	Niskin 13 was half full by the time it was sampled. Bad seat on bottom cap?
20190517.0605.001	20190517.0605	2019/05/17 06:05:06	CTD	start	14	A15	038	39.814774	-70.830030		zSandwith	
20190517.0647.001	20190517.0647	2019/05/17 06:47:55	CTD	stop	14	A15	038	39.814819	-70.830413		zSandwith	Niskin 13 slight drip out of bottom cap o- ring when petcock pushed in on integrity check.
20190517.0745.001	20190517.0745	2019/05/17 07:45:49	CTD	start	14	A14	039	39.879878	-70.830142		zSandwith	
20190517.0745.002	20190517.0745	2019/05/17 07:45:52	CTD	start	14	A14	039	39.879881	-70.830140		zSandwith	
20190517.0819.001	20190517.0819	2019/05/17 08:19:56	CTD	stop	14	A14	039	39.880397	-70.830188		zSandwith	
20190517.0912.001	20190517.0912	2019/05/17 09:12:17	CTD	start	14	A13	040	39.944722	-70.831072		zSandwith	
20190517.0958.001	20190517.0958	2019/05/17 09:58:25	CTD	stop	14	A13	040	39.944692	-70.829283		zSandwith	1st niskin not fired at bottom but at 250m - realised after firing 1st bottle at 250. ctd continued up to 200m. decided to send back down to 300 and fired niskin 2. then fired niskin 3 at 250 on re-ascent.

												1st bottle not sampled.
20190517.1043.001	20190517.1043	2019/05/17 10:43:25	CTD	start	14	A12	041	40.009961	-70.830639		zSandwith	
20190517.1112.001	20190517.1112	2019/05/17 11:12:03	CTD	stop	14	A12	041	40.009976	-70.829525		zSandwith	
20190517.1159.001	20190517.1159	2019/05/17 11:59:45	CTD	start	14	A11	042	40.074001	-70.830237		zSandwith	
20190517.1228.001	20190517.1228	2019/05/17 12:28:02	CTD	stop	14	A11	042	40.074436	-70.828975		zSandwith	
20190517.2043.001	20190517.1253	2019/05/17 12:52:54	Grazing Incubation	stop	12	A18	033	40.093781	-70.829059		cPetitpas	grazing incubation#4 breakdown at 08:53 local
20190517.1320.001	20190517.1320	2019/05/17 13:20:47	CTD	start	14	A10	043	40.138966	-70.829770		zSandwith	
20190517.1342.001	20190517.1342	2019/05/17 13:42:44	CTD	stop	14	A10	043	40.138726	-70.828839		zSandwith	
20190517.1431.001	20190517.1431	2019/05/17 14:31:17	CTD	start	14	A9	044	40.204439	-70.829837		zSandwith	
20190517.1459.001	20190517.1459	2019/05/17 14:59:10	CTD	stop	14	A9	044	40.204563	-70.829757		zSandwith	
20190517.1636.001	20190517.1636	2019/05/17 16:37:00	CTD	start	14	A9	45	40.204770	-70.830290		cXiao	grazing water incubation
20190517.1657.001	20190517.1657	2019/05/17 16:57:33	CTD	stop	14	A9	45	40.206004	-70.830747		cXiao	
20190517.2046.001	20190517.1712	2019/05/17 17:11:55	Grazing Incubation	start	14	A9	45	40.236579	-70.831040		cPetitpas	grazing incubation#5 start at 13:12 local at 22m in Front
20190517.1745.001	20190517.1745	2019/05/17 17:45:39	CTD	start	14	A8	46	40.271371	-70.832463		cXiao	Hilder at the CTD console
20190519.2042.001	20190517.1806	2019/05/17 18:05:55	SUNA V2	other	NaN	NaN	NaN	40.270398	-70.832494		tCrockford	swap battery resulting in start of erratic behavior of only taking readings sometimes
20190517.1807.001	20190517.1807	2019/05/17 18:08:00	CTD	stop	14	A8	46	40.270101	-70.832576		cXiao	Hilder at the CTD console
20190517.1909.001	20190517.1909	2019/05/17 19:09:24	CTD	start	14	A7	47	40.335923	-70.829711		cXiao	Gordon at the CTD console
20190517.1932.001	20190517.1932	2019/05/17 19:32:13	CTD	stop	14	A7	47	40.335980	-70.829523		cXiao	
20190517.2023.001	20190517.2023	2019/05/17 20:23:29	CTD	start	14	A6	48	40.396479	-70.828975		cXiao	Gordon at the CTD console
20190517.2047.001	20190517.2042	2019/05/17 20:41:55	CTD	stop	14	A6	48	40.396619	-70.828690		cXiao	
20190517.2143.001	20190517.2143	2019/05/17 21:43:11	CTD	start	14	A5	49	40.464138	-70.828835		cXiao	Gordon at the CTD console
20190517.2201.001	20190517.2201	2019/05/17 22:01:32	CTD	stop	14	A5	49	40.462414	-70.828336		cXiao	
20190517.2204.001	20190517.2204	2019/05/17	Other	end	14	A5	NaN	40.462002	-70.828329		wZhang	Transect 14

		22:04:12										(northward) ends
20190517.2205.001	20190517.2205	2019/05/17 22:05:40	Other	start	15	A5	NaN	40.461761	-70.828302		wZhang	Transect 15 (southwestward from A5 to NS1) starts
20190517.2352.001	20190517.2353	2019/05/17 23:53:02	Other	end	15	NS1	NaN	40.269977	-71.000152		wZhang	
20190517.2356.001	20190517.2356	2019/05/17 23:56:50	Other	start	16	NS1	NaN	40.270256	-70.999766		wZhang	Southward transect going through the frontal eddy
20190518.0020.001	20190518.0020	2019/05/18 00:20:40	CTD	start	16	NS1	050	40.275172	-70.996408		cXiao	Marshall at the CTD console
20190518.0040.001	20190518.0040	2019/05/18 00:40:27	CTD	stop	16	NS1	050	40.276404	-70.994643		cXiao	Marshall at the CTD console
20190518.0136.001	20190518.0136	2019/05/18 01:36:15	CTD	start	16	NS2	051	40.206512	-70.996392		zSandwith	
20190518.0156.001	20190518.0156	2019/05/18 01:56:55	CTD	stop	16	NS2	051	40.206691	-70.994915		cXiao	
20190518.0259.001	20190518.0259	2019/05/18 02:59:10	CTD	start	16	NS3	052	40.142811	-70.999918		cXiao	Marshall at the CTD console
20190518.0333.001	20190518.0333	2019/05/18 03:33:59	CTD	stop	16	NS3	052	40.142178	-70.999766		cXiao	
20190519.2045.001	20190518.0420	2019/05/18 04:19:57	SUNA V2	other	NaN	NaN	NaN	40.076893	-70.999789		tCrockford	clean cable connections trying to troubleshoot SUNA cutting out during casts almost no data C052
20190518.0436.001	20190518.0436	2019/05/18 04:36:09	CTD	start	16	EW2	053	40.074728	-70.999998		zSandwith	
20190518.0515.001	20190518.0515	2019/05/18 05:15:45	CTD	stop	16	EW2	053	40.074012	-70.999301		zSandwith	
20190518.0633.001	20190518.0633	2019/05/18 06:33:24	CTD	start	16	NS4	054	40.008249	-70.999477		zSandwith	
20190518.0705.001	20190518.0705	2019/05/18 07:05:20	CTD	stop	16	NS4	054	40.006861	-70.998931		zSandwith	
20190519.2047.001	20190518.0730	2019/05/18 07:29:58	SUNA V2	other	NaN	NaN	NaN	39.975425	-70.998119		tCrockford	change from deployment Y-cable #2 to #1
20190518.0802.001	20190518.0802	2019/05/18 08:02:22	CTD	start	16	NS5	055	39.944493	-70.998604		zSandwith	
20190518.0837.001	20190518.0837	2019/05/18 08:37:10	CTD	stop	16	NS5	055	39.944194	-70.999891		zSandwith	
20190518.0929.001	20190518.0929	2019/05/18 09:29:09	CTD	start	16	NS6	56	39.882102	-71.001494		zSandwith	
20190518.1004.001	20190518.1004	2019/05/18 10:04:31	CTD	stop	16	NS6	56	39.883670	-71.001024		zSandwith	
20190518.1103.001	20190518.1103	2019/05/18 11:03:38	CTD	start	16	NS6a	057	39.815906	-71.000824		zSandwith	
20190518.1145.001	20190518.1145	2019/05/18 11:45:08	CTD	stop	16	NS6a	057	39.817284	-71.000237		zSandwith	

20190518.1146.001	20190518.1146	2019/05/18 11:46:02	Other	end	16	NS6a		39.817380	-71.000189		zSandwith	
20190518.1154.001	20190518.1146	2019/05/18 11:45:58	Other	start	17	NS6a		39.817375	-71.000193		zSandwith	Northwestward transect - Eddy Mapping
20190519.2049.001	20190518.1320	2019/05/18 13:19:58	SUNA V2	other	NaN	NaN	NaN	39.971566	-71.267969		tCrockford	troubleshooting reset connectors on Y-cable
20190518.1343.001	20190518.1343	2019/05/18 13:43:25	Other	end	17	EW7		40.009848	-71.337203		zSandwith	
20190518.1343.002	20190518.1343	2019/05/18 13:43:58	Other	start	18	EW7		40.010060	-71.337164		zSandwith	Transect 18 (Eastward cutting through Eddy Edward) with CTD and VPR tow-3
20190518.1351.001	20190518.1351	2019/05/18 13:51:05	CTD	start	18	EW7	058	40.010305	-71.337192		zSandwith	
20190518.1421.001	20190518.1421	2019/05/18 14:21:33	CTD	stop	18	EW7	058	40.012510	-71.336324		zSandwith	
20190519.2052.001	20190518.1500	2019/05/18 14:59:58	SUNA V2	other	NaN	NaN	NaN	40.008496	-71.256645		tCrockford	swap battery to BAT-1075 repacked by Heidi and Josh, same batteries as C47-53 reads 15.1V
20190518.1510.001	20190518.1510	2019/05/18 15:10:15	CTD	start	18	EW8	059	40.010140	-71.249716		zSandwith	
20190518.1550.001	20190518.1550	2019/05/18 15:50:17	CTD	stop	18	EW8	059	40.008603	-71.250125		zSandwith	
20190518.1652.001	20190518.1652	2019/05/18 16:52:20	CTD	start	18	EW9	060	40.010719	-71.168582		cXiao	Hilder at the CTD console
20190519.0058.001	20190518.1717	2019/05/18 17:16:58	Grazing Incubation	stop	14	A9	45	40.010258	-71.169127		cPetitpas	grazing incubation#5 breakdown at 13:15 local
20190518.1731.001	20190518.1731	2019/05/18 17:31:53	CTD	stop	18	EW9	060	40.010187	-71.169225		cXiao	Hilder at the CTD console
20190519.2053.001	20190518.1745	2019/05/18 17:44:58	SUNA V2	offCTD	NaN	NaN	NaN	40.009799	-71.160561		tCrockford	troubleshooting why no data during most of a casts since originally swapped battery
20190518.1825.001	20190518.1825	2019/05/18 18:25:28	CTD	start	18	NS10	061	40.010593	-71.083856		cXiao	Hilder at the CTD console
20190518.1906.001	20190518.1901	2019/05/18 19:00:58	EIMS	start	18	NS4	NaN	40.012473	-71.082038		cXiao	underway surface seawater at same time as cast surface
20190518.1904.001	20190518.1905	2019/05/18 19:04:58	CTD	stop	18	NS10	061	40.012338	-71.081828		cXiao	Hilder at the CTD console

20190518.2017.001	20190518.1944	2019/05/18 19:44:58	MOCNESS	deploy	18	NS10	MOC 6	40.016524	-71.095388		cXiao	
20190519.2055.001	20190518.2030	2019/05/18 20:29:58	SUNA V2	onCTD	NaN	NaN	NaN	40.012410	-71.087052		tCrockford	swap battery with newly grounded battery soldered by Marshall
20190518.2040.001	20190518.2040	2019/05/18 20:40:07	CTD	start	18	NS10	062	40.012358	-71.083692		cXiao	grazing water incubation; DAVPR and SUNA not on
20190519.2056.001	20190518.2040	2019/05/18 20:39:58	SUNA V2	other	NaN	NaN	NaN	40.012350	-71.083688		tCrockford	not plugged in for C062
20190518.2050.001	20190518.2050	2019/05/18 20:50:11	CTD	stop	18	NS10	062	40.013087	-71.083938		cXiao	
20190518.2251.001	20190518.2110	2019/05/18 21:09:58	towed VPR	recover	18	A12	VPR3	40.010807	-71.086032		cXiao	VPR Tow3
20190518.2300.001	20190518.2112	2019/05/18 21:12:58	towed VPR	deploy	18	SN10	VPR3	40.011167	-71.079465		cXiao	VPR tow3; starting time read from VPR log file
20190519.0103.001	20190518.2114	2019/05/18 21:13:58	Grazing Incubation	start	18	NS10	062	40.011276	-71.077253		cPetitpas	grazing incubation#6 start at 17:14 local at 30m in Eddy
20190518.2328.001	20190518.2318	2019/05/18 23:17:59	Other	end	18	A12		40.013525	-70.801267		wZhang	
20190518.2329.001	20190518.2318	2019/05/18 23:17:59	Other	start	19	A12		40.013525	-70.801267		wZhang	Transect 19 (Westward)
20190518.2344.001	20190518.2344	2019/05/18 23:44:16	CTD	start	19	A12	063	40.009465	-70.831933		cXiao	Gordon at the CTD console
20190518.2359.001	20190518.2351	2019/05/18 23:51:59	CTD	stop	19	A12	063	40.009287	-70.833100		wZhang	Bad profile with large density inversion and sensor differences, likely due to clogged tube. Abandoned. CTD brought back on deck for cleaning. Profile to be retaken.
20190519.0014.001	20190519.0014	2019/05/19 00:14:44	CTD	start	19	A12	064	40.007068	-70.836187		cXiao	Gordon at the CTD console; retake of cast 063
20190519.0049.001	20190519.0049	2019/05/19 00:49:50	CTD	start	19	A12	064	40.003371	-70.838228		cXiao	Gordon at the CTD console
20190519.0146.001	20190519.0146	2019/05/19 01:46:57	CTD	start	019	EW10	065	40.009968	-70.914582		cXiao	Marshall at the CTD console
20190519.0218.001	20190519.0218	2019/05/19 02:18:54	CTD	stop	019	EW10	065	40.009973	-70.914580		cXiao	Marshall at the CTD console
20190519.0309.001	20190519.0309	2019/05/19	CTD	start	019	NS4	066	40.011266	-70.998761		cXiao	Marshall at the

		03:09:14									CTD console	
20190519.0346.001	20190519.0346	2019/05/19 03:46:14	CTD	stop	019	NS4	066	40.012985	-71.000223		cXiao	Marshall at the CTD console
20190519.0358.001	20190519.0358	2019/05/19 03:58:29	Other	end	19	NS4		40.011583	-71.000401		zSandwith	
20190519.0358.002	20190519.0358	2019/05/19 03:58:59	Other	start	20	NS4		40.011556	-71.000245		zSandwith	Transect 20 Eastward Eddy Survey
20190519.0428.001	20190519.0428	2019/05/19 04:28:44	Other	end	20	EW10		40.013475	-70.908191		zSandwith	Transect 20 Eastward Eddy Survey
20190519.0429.001	20190519.0429	2019/05/19 04:29:29	Other	start	21	EW10		40.015443	-70.907689		zSandwith	Transect 21 Northward Eddy Survey
20190519.0601.001	20190519.0601	2019/05/19 06:01:44	Other	end	21	NS13		40.270750	-70.916962		zSandwith	Transect 21 Northward
20190519.0604.001	20190519.0604	2019/05/19 06:04:44	Other	start	22	NS13		40.277111	-70.922941		zSandwith	Transect 22 Westward
20190519.0649.001	20190519.0649	2019/05/19 06:49:44	Other	end	22	NS7		40.271722	-71.084507		zSandwith	Transect 22 Westward
20190519.0651.001	20190519.0651	2019/05/19 06:51:14	Other	start	23	NS7		40.270593	-71.082931		zSandwith	Transect 23 South - diverted Eastward around EW3 due to fishing gear
20190519.0911.001	20190519.0911	2019/05/19 09:11:33	Other	end	23	NS12	NaN	39.881856	-71.083107		wZhang	Transect 23 (Southward from NS7 to NS12) ends
20190519.0912.001	20190519.0912	2019/05/19 09:12:19	Other	start	24	NS12	NaN	39.881463	-71.082693		wZhang	Transect 24 (northward from NS12 to NS10) starts
20190519.1005.001	20190519.1005	2019/05/19 10:05:16	Other	end	24	NS10	NaN	40.009076	-71.084132		zSandwith	
20190519.1009.001	20190519.1009	2019/05/19 10:09:29	Other	start	25	NS10	NaN	40.009192	-71.084801		zSandwith	Transect 25 Eastward Transect
20190519.1016.001	20190519.1015	2019/05/19 10:15:59	CTD	start	25	NS10	067	40.009202	-71.084799		zSandwith	Productivity ctd had to be recovered temporarily due to bottle closing at surface after surface.
20190519.1050.001	20190519.1050	2019/05/19 10:49:59	CTD	stop	25	NS10	067	40.009741	-71.083676		zSandwith	
20190519.1220.001	20190519.1220	2019/05/19 12:20:14	CTD	start	25	A12	068	40.010628	-70.830523		zSandwith	Productivity - had to abort at 77m due to potential clog in plumbing. Salps?
20190519.1230.001	20190519.1230	2019/05/19 12:30:59	CTD	stop	25	A12	068	40.010935	-70.830538		zSandwith	

20190519.1232.001	20190519.1230	2019/05/19 12:30:59	CTD	start	25	A12	069	40.010935	-70.830538		zSandwith	Redo of Cast 68. Still differences between the 2 salt and temperature sensors. Dennis thinks it's because of the position of sensors with the sharp changes in water
20190519.1300.001	20190519.1300	2019/05/19 13:00:38	CTD	stop	25	A12	069	40.011533	-70.830053		zSandwith	
20190518.2018.001	20190519.1355	2019/05/19 13:55:00	MOCNESS	recover		A12	MOC7	39.988622	-70.816163		pAlatalo	
20190519.1435.001	20190519.1435	2019/05/19 14:35:15	CTD	start	25	A12	070	40.010831	-70.830945		zSandwith	Grazing Cast - no DA-VPR
20190519.1447.001	20190519.1447	2019/05/19 14:47:30	CTD	stop	25	A12	070	40.011628	-70.830584		zSandwith	
20190519.1217.001	20190519.1448	2019/05/19 14:48:45	Other	end	25	A12	NaN	40.011672	-70.830546		zSandwith	Transect 25 Eastward Transect
20190519.1449.001	20190519.1449	2019/05/19 14:49:42	Other	start	26	A12	NaN	40.011707	-70.830513		zSandwith	Transect 26 Start - VPR survey
20190520.1027.001	20190519.1507	2019/05/19 15:07:00	Grazing Incubation	start	25	A12	70	40.002447	-70.830203		cPetitpas	grazing incubation#7 start at 11:07 local at 14m. Vertical structure had Front water at surface, but at 14m subducted shelf water
20190520.0112.001	20190519.1607	2019/05/19 16:07:00	Other	end	26	A8	NaN	40.133028	-70.831201		wZhang	Transect 26 (northward VPR tow-4 Leg 1) ends at A8
20190520.0120.001	20190519.1607	2019/05/19 16:07:00	Other	start	27	A8	NaN	40.133028	-70.831201		wZhang	Transect 27 (VPR tow-4 Leg 2) starts
20190520.0121.001	20190519.1643	2019/05/19 16:43:00	Other	end	27	NS13	NaN	40.214763	-70.829567		wZhang	Transect 27 (VPR tow-4 Leg 2) ends
20190520.0129.001	20190519.1643	2019/05/19 16:43:00	Other	start	28	NS13	NaN	40.214763	-70.829567		wZhang	Transect 28 (Southward VPR tow-4 Leg 3) starts
20190519.2058.001	20190519.1656	2019/05/19 16:56:00	SUNA V2	update time	NaN	NaN	NaN	40.243989	-70.830220		tCrockford	exactly in sync 0sec off
20190520.0130.001	20190519.2023	2019/05/19 20:23:00	Other	end	28	NS14	NaN	39.915871	-70.915053		wZhang	Transect 28 ends
20190520.0131.001	20190519.2023	2019/05/19	Other	start	29	NS14	NaN	39.915871	-70.915053		wZhang	Transect 29



		20:23:00										(Westward VPR tow-4 Leg-4) starts
20190520.1030.001	20190519.2135	2019/05/19 21:35:00	Grazing Incubation	stop	18	NS10	062	39.766198	-70.942473		cPetitpas	grazing incubation#6 breakdown at 17:35 local
20190520.0134.001	20190519.2154	2019/05/19 21:54:00	Other	end	29	NS6	NaN	39.768217	-70.998819		wZhang	Transect 29 ends
20190520.0135.001	20190519.2154	2019/05/19 21:54:00	Other	start	30	NS6	NaN	39.768217	-70.998819		wZhang	Transect 30 (Northward VPR tow-4 Leg-5) starts
20190520.0024.001	20190520.0010	2019/05/20 00:10:00	towed VPR	recover	30	EW2	NaN	40.057153	-70.995373		wZhang	
20190520.0136.001	20190520.0023	2019/05/20 00:23:00	Other	end	30	EW2	NaN	40.040223	-70.980615		wZhang	Transect 30 ends
20190520.0137.001	20190520.0023	2019/05/20 00:23:00	Other	start	31	EW2	NaN	40.040223	-70.980615		wZhang	Transect 31 (northeastward) starts
20190520.0755.001	20190520.0302	2019/05/20 03:02:02	Other	start	32	A5	NaN	40.464393	-70.830429		zSandwith	Transect 32 (Southward along the main CTD line) starts
20190520.0754.001	20190520.0303	2019/05/20 03:03:02	Other	end	31	A5	NaN	40.464347	-70.830486		zSandwith	Transect 31 ends
20190520.0305.001	20190520.0305	2019/05/20 03:05:47	CTD	start	32	A5	71	40.464204	-70.830451		cXiao	Marshall at the CTD console
20190520.0322.001	20190520.0322	2019/05/20 03:22:47	CTD	stop	32	A5	71	40.465789	-70.830814		cXiao	
20190520.0415.001	20190520.0415	2019/05/20 04:15:48	CTD	start	32	A6	072	40.400203	-70.829518		zSandwith	
20190520.0432.001	20190520.0432	2019/05/20 04:32:48	CTD	stop	32	A6	072	40.400083	-70.829899		zSandwith	
20190520.0524.001	20190520.0524	2019/05/20 05:24:48	CTD	start	32	A7	073	40.335007	-70.830422		zSandwith	
20190520.0547.001	20190520.0547	2019/05/20 05:47:33	CTD	stop	32	A7	073	40.335269	-70.829376		zSandwith	MS noted that VPR UV lamp took a very long time to shut off (approx 4 mins) and once strobe was off DA-VPR was making loud metallic buzz. Possibly due to low voltage supply to battery
20190520.0634.001	20190520.0634	2019/05/20 06:34:48	CTD	start	32	A8	074	40.270222	-70.830032		zSandwith	
20190520.0702.001	20190520.0702	2019/05/20 07:03:03	CTD	stop	32	A8	074	40.274581	-70.830688		zSandwith	
20190520.0752.001	20190520.0752	2019/05/20 07:52:18	CTD	start	32	A9	075	40.205161	-70.830094		zSandwith	Changed DA-VPR battery. Removed

												battery voltage at 30.67V. Foggy conditions - dummy plugs should be used due to condensation
20190520.0808.001	20190520.0808	2019/05/20 08:08:08	CTD	stop	32	A9	075	40.205190	-70.830114		zSandwith	
20190520.1007.001	20190520.1007	2019/05/20 10:07:29	CTD	start	32	A10	076	40.140223	-70.829564		zSandwith	
20190520.1029.001	20190520.1029	2019/05/20 10:29:56	CTD	stop	32	A10	076	40.140163	-70.829947		zSandwith	
20190520.1121.001	20190520.1122	2019/05/20 11:22:01	CTD	start	32	A11	077	40.075560	-70.830135		zSandwith	
20190520.1142.001	20190520.1142	2019/05/20 11:42:16	CTD	stop	32	A11	077	40.078038	-70.830209		zSandwith	
20190520.1233.001	20190520.1233	2019/05/20 12:33:48	CTD	start	32	A12	078	40.010007	-70.831465		zSandwith	During soak CTD showed big differences between conductivity cells and T cells. had to recover to clean. Did not generate new cast number
20190520.1324.001	20190520.1324	2019/05/20 13:24:31	CTD	stop	32	A12	078	40.009865	-70.830845		zSandwith	
20190520.1426.001	20190520.1426	2019/05/20 14:26:43	CTD	start	32	A13	079	39.945030	-70.828725		zSandwith	
20190520.1507.001	20190520.1507	2019/05/20 15:07:03	CTD	stop	32	A13	079	39.944271	-70.827929		zSandwith	
20190521.0301.001	20190520.1507	2019/05/20 15:07:03	Grazing Incubation	stop	25	A12	70	39.944270	-70.827929		cPetitpas	grazing incubation#7 breakdown at 11:07 local
20190520.1734.001	20190520.1723	2019/05/20 17:23:03	Other	end	32	A18	NaN	39.618633	-70.828582		zSandwith	
20190520.1735.001	20190520.1723	2019/05/20 17:23:03	Other	start	33	A18	NaN	39.618633	-70.828582		zSandwith	Transect 33 Start - A18 to A14
20190520.1733.001	20190520.1733	2019/05/20 17:33:09	CTD	start	33	A18	080	39.618756	-70.828109		cXiao	Hilder at the CTD console
20190520.1819.001	20190520.1819	2019/05/20 18:19:42	CTD	stop	33	A18	080	39.617930	-70.827914		cXiao	
20190520.1947.001	20190520.1947	2019/05/20 19:48:04	CTD	start	33	A18	081	39.620582	-70.826243		cXiao	zoop incubation water collection
20190520.1959.001	20190520.1959	2019/05/20 19:59:19	CTD	stop	33	A18	081	39.619555	-70.827089		cXiao	
20190521.0255.001	20190520.2021	2019/05/20 20:21:04	Grazing Incubation	start	33	A18	081	39.653224	-70.827518		cPetitpas	grazing incubation#8 start at 16:21

												local with Slope water at 32m
20190520.2049.001	20190520.2049	2019/05/20 20:49:47	CTD	start	33	A17	082	39.682052	-70.830182		cXiao	
20190520.2135.001	20190520.2135	2019/05/20 21:35:35	CTD	stop	33	A17	082	39.681309	-70.831795		cXiao	
20190520.2236.001	20190520.2236	2019/05/20 22:36:51	CTD	start	33	A16	083	39.751487	-70.831564		cXiao	Gordon at the CTD console
20190520.2322.001	20190520.2322	2019/05/20 23:22:32	CTD	stop	33	A16	083	39.757106	-70.831491		cXiao	
20190521.0057.001	20190521.0015	2019/05/21 00:15:04	CTD	start	33	A15	084	39.813667	-70.835484		cXiao	
20190521.0059.001	20190521.0059	2019/05/21 00:59:07	CTD	stop	33	A15	084	39.817808	-70.833941		cXiao	
20190521.0138.001	20190521.0138	2019/05/21 01:38:21	CTD	start	33	A14	085	39.879352	-70.829460		cXiao	Marshall at the CTD console
20190521.0151.001	20190521.0151	2019/05/21 01:51:21	Other	end	33	A14	NaN	39.879335	-70.829612		wZhang	Transect 33 (northward) ends
20190521.0152.001	20190521.0152	2019/05/21 01:52:14	Other	start	34	A14	NaN	39.879503	-70.829463		wZhang	Transect 34 (southward EIMS transit) starts
20190521.0220.001	20190521.0220	2019/05/21 02:20:56	CTD	stop	33	A14	085	39.878444	-70.829300		cXiao	
20190521.0320.001	20190521.0320	2019/05/21 03:21:04	Other	end	34	A14	NaN	39.750611	-70.826313		cXiao	
20190521.0322.001	20190521.0322	2019/05/21 03:22:03	Other	start	35	NaN	NaN	39.750439	-70.822707		cXiao	
20190521.0421.001	20190521.0421	2019/05/21 04:21:19	Other	end	35	EIMS_E3	NaN	39.749271	-70.609402		zSandwith	Transect 35 End Eastward
20190521.0422.001	20190521.0422	2019/05/21 04:22:31	Other	start	36	EIMS_E3	NaN	39.749241	-70.608293		zSandwith	Tramsect 36 Start Westward
20190521.0653.001	20190521.0653	2019/05/21 06:53:22	Other	end	36	EIMS_W3	NaN	39.748831	-71.044830		zSandwith	
20190521.0654.001	20190521.0654	2019/05/21 06:54:19	Other	start	37	EIMS_W3	NaN	39.748917	-71.042430		zSandwith	Transect 37 Start Eastward towards A16
20190521.0753.001	20190521.0753	2019/05/21 07:53:33	Other	end	37	A16	NaN	39.747500	-70.829625		zSandwith	Transect 37 End at A16
20190521.0754.001	20190521.0850	2019/05/21 08:50:42	Other	end	38	A18	NaN	39.620558	-70.828557		zSandwith	Transect 38 End
20190521.0851.001	20190521.0851	2019/05/21 08:51:03	Other	start	39	A18	NaN	39.620412	-70.828701		zSandwith	Transect 39 Holding Station and MOCNESS
20190521.1000.001	20190521.1000	2019/05/21 10:00:27	CTD	start	39	A18	086	39.619895	-70.830182		zSandwith	primary productivity
20190521.1043.001	20190521.1043	2019/05/21 10:43:19	CTD	stop	39	A18	086	39.619808	-70.830404		zSandwith	
20190521.1210.001	20190521.1210	2019/05/21 12:10:24	CTD	start	39	A18	087	39.620123	-70.830109		zSandwith	Grazing Cast - no DAVPR
20190521.1221.001	20190521.1221	2019/05/21 12:21:46	CTD	stop	39	A18	087	39.619887	-70.829937		zSandwith	
20190521.1223.001	20190521.1223	2019/05/21	Other	end	39	A18	NaN	39.619893	-70.830024		zSandwith	Transect 39 End

		12:23:50										
20190521.1224.001	20190521.1224	2019/05/21 12:24:19	Other	start	40	A18	NaN	39.619905	-70.830090		zSandwith	Transect 40 VPR tow-5 (Diatom Hunting) Southwards Leg-1 starts
20190521.1947.001	20190521.1230	2019/05/21 12:30:04	towed VPR	deploy	40	NaN	NaN	39.619809	-70.831115		wZhang	VPR tow-5 Diatom Hunting trip starts
20190522.1153.001	20190521.1247	2019/05/21 12:47:04	Grazing Incubation	start	39	A18	87	39.608515	-70.852593		cPetitpas	grazing incubation#9 start at 08:47 local with Slope water at 41m
20190521.1456.001	20190521.1412	2019/05/21 14:12:04	Other	end	40		NaN	39.425753	-70.830288		wZhang	
20190521.1458.001	20190521.1412	2019/05/21 14:12:04	Other	start	41		NaN	39.425753	-70.830288		wZhang	Transect 41 (eastward VPR tow-5 Leg-2) starts
20190521.1501.001	20190521.1455	2019/05/21 14:55:04	Other	end	41	NaN	NaN	39.427241	-70.729260		wZhang	Transect 41 VPR tow-5 eastwards Leg- 2 ends
20190521.1502.001	20190521.1455	2019/05/21 14:55:04	Other	start	42	NaN	NaN	39.427241	-70.729260		wZhang	Transect 42 VPR tow-5 (Diatom Hunting) northwards Leg-3 starts
20190521.2020.001	20190521.1908	2019/05/21 19:08:04	Attune Flowcytometer	stop	NaN	NaN	NaN	39.951551	-70.760666		tCrockford	stop to clean sea strainer
20190521.2021.001	20190521.1908	2019/05/21 19:08:04	Underway Science Seawater Diaphragm	stop	NaN	NaN	NaN	39.951551	-70.760666		tCrockford	stop to clean sea strainer
20190521.1924.001	20190521.1910	2019/05/21 19:10:04	Other	end	42	NaN	NaN	39.951721	-70.761303		wZhang	Transect 42 VPR tow-5 northwards Leg-3 end for ship crew to clean clogged ship strainer
20190521.1943.001	20190521.1910	2019/05/21 19:10:04	towed VPR	recover	42	NaN	NaN	39.951721	-70.761303		wZhang	VPR tow 5 stopped for the ship to clean strainer
20190521.2021.002	20190521.1915	2019/05/21 19:15:04	IFCB continuous	stop	NaN	NaN	NaN	39.952270	-70.761123		tCrockford	stop to clean sea strainer and clean intake and overflow bottle
20190521.2022.001	20190521.1927	2019/05/21 19:27:04	Underway Science Seawater Diaphragm	start	NaN	NaN	NaN	39.953520	-70.758614		tCrockford	

20190521.2024.001	20190521.1928	2019/05/21 19:28:04	IFCB continuous	start	NaN	NaN	NaN	39.953688	-70.758391		tCrockford	
20190521.2023.001	20190521.1930	2019/05/21 19:30:04	Attune Flowcytometer	start	NaN	NaN	NaN	39.954044	-70.759817		tCrockford	
20190521.1944.001	20190521.1944	2019/05/21 19:44:19	towed VPR	deploy	43	A13	NaN	39.954383	-70.791778		wZhang	VPR tow-6 starts
20190521.1946.001	20190521.1944	2019/05/21 19:44:19	Other	start	43	NaN	NaN	39.954383	-70.791778		wZhang	Transect 43 (southward VPR tow-6 Leg-1) starts
20190522.1155.001	20190521.2021	2019/05/21 20:21:04	Grazing Incubation	stop	33	A18	81	39.901762	-70.830090		cPetitpas	grazing incubation#8 breakdown at 16:21 local
20190521.2004.001	20190521.2305	2019/05/21 23:05:04	Other	end	43	A13	NaN	39.531792	-70.829313		wZhang	Transect 43 (VPR tow-6 Leg-1 southward) ends
20190521.2005.001	20190521.2305	2019/05/21 23:05:04	Other	start	44		NaN	39.531792	-70.829313		wZhang	Transect 44 (VPR tow-6 Leg-2 westward) starts
20190522.0025.001	20190521.2330	2019/05/21 23:30:04	Other	start	45	NaN	NaN	39.521669	-70.893519		wZhang	Transect 45 (VPR tow-6 northward leg- 3) start
20190522.0016.001	20190522.0016	2019/05/22 00:16:05	towed VPR	recover	45	NaN	NaN	39.599363	-70.928680		wZhang	VPR tow-6 ends
20190522.0035.001	20190522.0016	2019/05/22 00:16:05	Other	start	46	NaN	NaN	39.599363	-70.928680		wZhang	Transect 46 (northeastward toward A18) starts after VPR recovery
20190522.0109.001	20190522.0110	NaN	Other	start	47	A18	NaN	NaN	NaN		wZhang	Transect 47 (Northward) starts
20190522.0112.001	20190522.0112	2019/05/22 01:12:46	CTD	start	47	A18	088	39.620034	-70.830729		cXiao	
20190522.0156.001	20190522.0156	2019/05/22 01:56:20	CTD	stop	47	A18	088	39.619938	-70.832347		cXiao	A salinity bias of about -0.01 psu is observed on the secondary relative to primary CTD. After cast, flushed primary and secondary T/C/O2 with 1% Triton-x for 5 min and then rinsed.
20190522.0252.001	20190522.0252	2019/05/22 02:52:30	CTD	start	47	A17	089	39.684266	-70.828870		cXiao	Marshall at the CTD console

20190522.0341.001	20190522.0341	2019/05/22 03:41:42	CTD	stop	47	A17	089	39.683659	-70.830027		cXiao	
20190522.0448.001	20190522.0448	2019/05/22 04:48:31	CTD	start	47	A16	090	39.749676	-70.829757		zSandwith	
20190522.0530.001	20190522.0530	2019/05/22 05:30:49	CTD	stop	47	A16	090	39.749750	-70.830146		zSandwith	
20190522.0620.001	20190522.0620	2019/05/22 06:20:27	CTD	start	47	A15	091	39.814233	-70.830771		zSandwith	
20190522.0701.001	20190522.0701	2019/05/22 07:01:57	CTD	stop	47	A15	091	39.809647	-70.829345		zSandwith	
20190522.0746.001	20190522.0701	2019/05/22 07:01:52	CTD	stop	47	A15	091	39.809664	-70.829348		zSandwith	Changed DAVPR battery after cast - 31.04 V
20190522.0759.001	20190522.0759	2019/05/22 07:59:47	CTD	start	47	A14	092	39.880547	-70.831152		zSandwith	
20190522.0834.001	20190522.0834	2019/05/22 08:34:13	CTD	stop	47	A14	092	39.880787	-70.832729		zSandwith	
20190522.0920.001	20190522.0920	2019/05/22 09:20:37	CTD	start	47	A13	093	39.944926	-70.830432		zSandwith	
20190522.1007.001	20190522.1007	2019/05/22 10:07:07	CTD	stop	47	A13	093	39.944936	-70.829997		zSandwith	Niskin 13 had slight leak across bottom o-ring. Was not discovered before starting sampling
20190522.1049.001	20190522.1049	2019/05/22 10:49:03	CTD	start	47	A12	094	40.006862	-70.830408		zSandwith	primary productivity
20190522.1115.001	20190522.1115	2019/05/22 11:15:13	CTD	stop	47	A12	094	40.009428	-70.830441		zSandwith	
20190522.1201.001	20190522.1201	2019/05/22 12:01:25	CTD	start	47	095	NaN	40.073688	-70.830147		zSandwith	primary productivity
20190522.1222.001	20190522.1222	2019/05/22 12:22:02	CTD	stop	47	095	NaN	40.071198	-70.829073		zSandwith	
20190522.1317.001	20190522.1317	2019/05/22 13:17:23	CTD	start	47	A10	096	40.140433	-70.831996		zSandwith	salinity differences were very bad so restarted cast - sent down to 20m then brought back up. didn't generate new cast number. pumps did clear
20190522.1351.001	20190522.1351	2019/05/22 13:51:45	CTD	stop	47	A10	096	40.139907	-70.831545		zSandwith	
20190522.1437.001	20190522.1437	2019/05/22 14:37:30	CTD	start	47	A9	097	40.204640	-70.832804		zSandwith	
20190522.1501.001	20190522.1501	2019/05/22 15:01:38	CTD	stop	47	A9	097	40.204712	-70.837215		zSandwith	
20190522.1548.001	20190522.1548	2019/05/22 15:48:45	CTD	start	47	A8	098	40.271063	-70.831850		zSandwith	
20190522.1623.001	20190522.1623	2019/05/22 16:23:27	CTD	stop	47	A8	098	40.273911	-70.833011		zSandwith	

20190522.1641.001	20190522.1637	2019/05/22 16:36:54	MOCNESS	deploy	47	NaN	NaN	40.276328	-70.830028		cXiao	
20190522.1750.001	20190522.1710	2019/05/22 17:09:54	MOCNESS	recover	47	NaN	NaN	40.289009	-70.807020		cXiao	
20190522.1755.001	20190522.1750	2019/05/22 17:49:54	CTD	start	47	A8	099	40.271402	-70.831104		cXiao	NO water sampling
20190522.1800.001	20190522.1800	2019/05/22 18:00:03	CTD	stop	47	A8	099	40.272162	-70.831517		cXiao	
20190522.1816.001	20190522.1810	2019/05/22 18:09:54	Other	start	48	A8	NaN	40.275091	-70.824631		wZhang	Transect 48 (southward VPR tow-7) starts
20190522.1812.001	20190522.1812	2019/05/22 18:12:09	towed VPR	deploy	48	A8	NaN	40.276899	-70.819667		cXiao	VPR tow-7 southward from A8

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