

KM1906

GRADIENTS 3

CTD CAST Logsheets

Station: 1	Cast: 1
Bottom (m): 1495	Date (UTC): 4/10/19
Time Start Logging UTC: 06:34	
Pressure on deck	Time (UTC)
Start: -0.389	In water: 06:39
End: -0.726	Out water: 06:59
Latitude N	Longitude W
Start: 21° 20.5381'	Start: 158° 16.3568'
End: 21° 20.5404'	End: 158° 16.3512'
Max Press: 201db	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP <small>↳ HOT/CURRENTS</small>	Test Cast @ Station Kahe Temperature Sensors: Primary: 5554 Secondary: 5539 Conductivity Sensors: P: 3876 S: 3784 DO Sensors: P: 2345 S: 2194 Fluorometers: Seapoint SN3711 Wetlabs FLRTD SN 2087 PAR: 70307 Transmissometer: 14192DR Lowered ADCP: WH600-1003
CTD: UH OTG ROSETTE: SCOPE	

→ NO! Was 0184. See update at bottom.

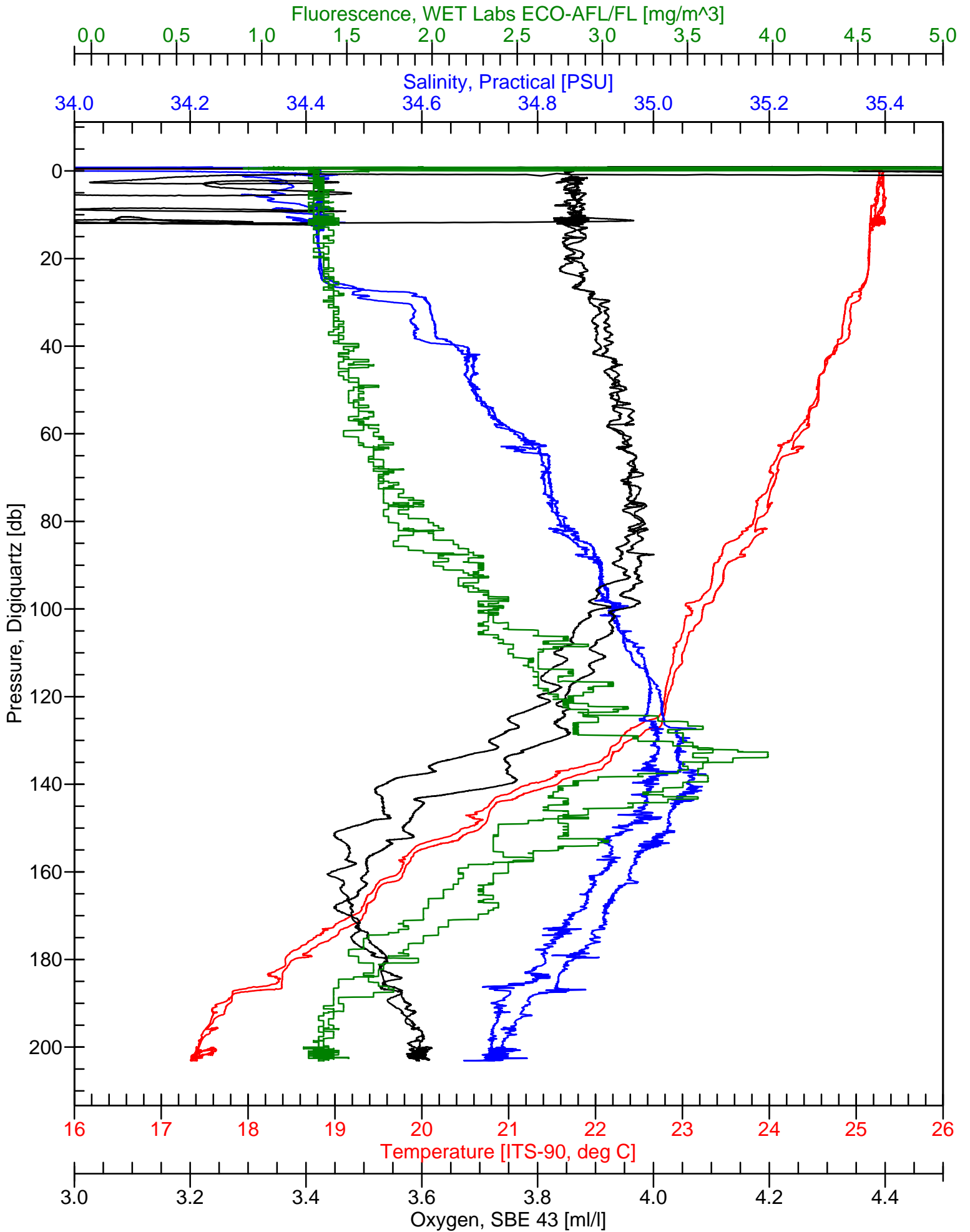
Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	10	06:56	~10	✓	All bottles passed vacuum tests!
2				✓	
3				✓	
4				✓	
5				✓	
6				✓	
7				✓	
8				✓	
9				✓	
10				✓	
11				✓	
12				✓	
13				✓	
14				✓	
15				✓	
16				✓	
17				✓	
18				✓	
19				✓	
20				✓	
21				✓	
22				✓	
23				✓	
24				✓	

Sensor Notes: DO Sensor SN 2345 was reading very low (~25% or so). Will be swapped before the next cast. See update below

Wetlabs Fluorometer will also be swapped in favor of a sensor that has backscattering capabilities.

Update! DO Sensor "2345" was NOT "2345" - it was "0184". Still a bad sensor w/ correct

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CTD CAST Logsheets

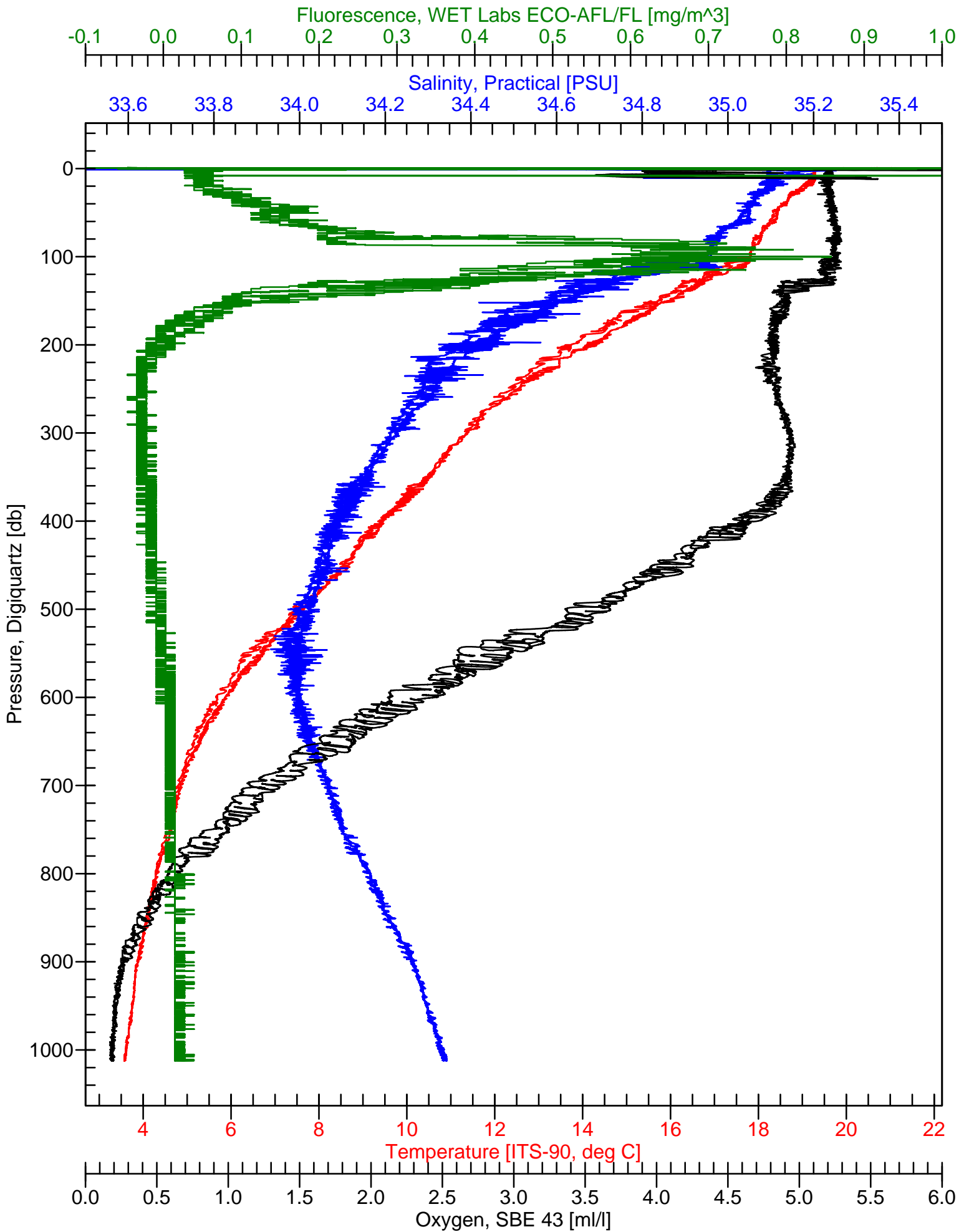
Station: 2	Cast: 1
Bottom (m): 5830	Date (UTC): 4/13/19
Time Start Logging UTC: 04:00	
Pressure on deck	Time (UTC)
Start: -0.6142	In water: 04:05
End: -0.2858	Out water: 05:01
Latitude N	Longitude W
Start: 31° 05.426' N	Start: 158° 00.061' W
End:	End:
Max Press: 1010	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADGP DID NOT RUN	Primary DO sensor is SN 0134 Wetlab Fluorometer replaced with Wetlabs FLUNTV to add a scattering sensor. SN 2482.
CTD: UH OTG ROSETTE: SCOPE	Very slow due to swell, loopy oxygen data. No pressure readout at winch doghouse, stops

Niskin	Target (m)	Time GMT Stopped	Pressure db	Confirm Trip ✓	Comments
1	1000	04:49:00	1010	✓	1010db = 1000m
2	800	04:55:03	810	✓	
3	600	05:00:33	608	✓	
4	400	:06:07	404	✓	
5	200	:11:50	202	✓	
6	150	:14:04	151	✓	
7	125	:15:23	126	✓	
8	125	:15:25	126	✓	
9	125	:15:27	126	✓	BOTTLE DID NOT CLOSE
10	100	05:17:20	102	✓	
11	100	05:17:24	102	✓	
12	100	05:17:28	102	✓	
13	100	05:17:32	102	✓	
14	75	05:19	76	✓	
15	75	05:19:39	77	✓	
16	75	05:20:05	76	✓	
17	45	05:21:28	48	✓	
18	45	05:21:42	49	✓	
19	45	05:21:55	48	✓	
20	25	05:23:07	28	✓] one of the marks is wrong
21	15	05:24:10	15	✓	
22	15	05:24:22	17	✓	
23	15	05:24:38	18	✓	
24	5	05:25:44	8	✓	

made by payout, which was spot on depth in m of SW

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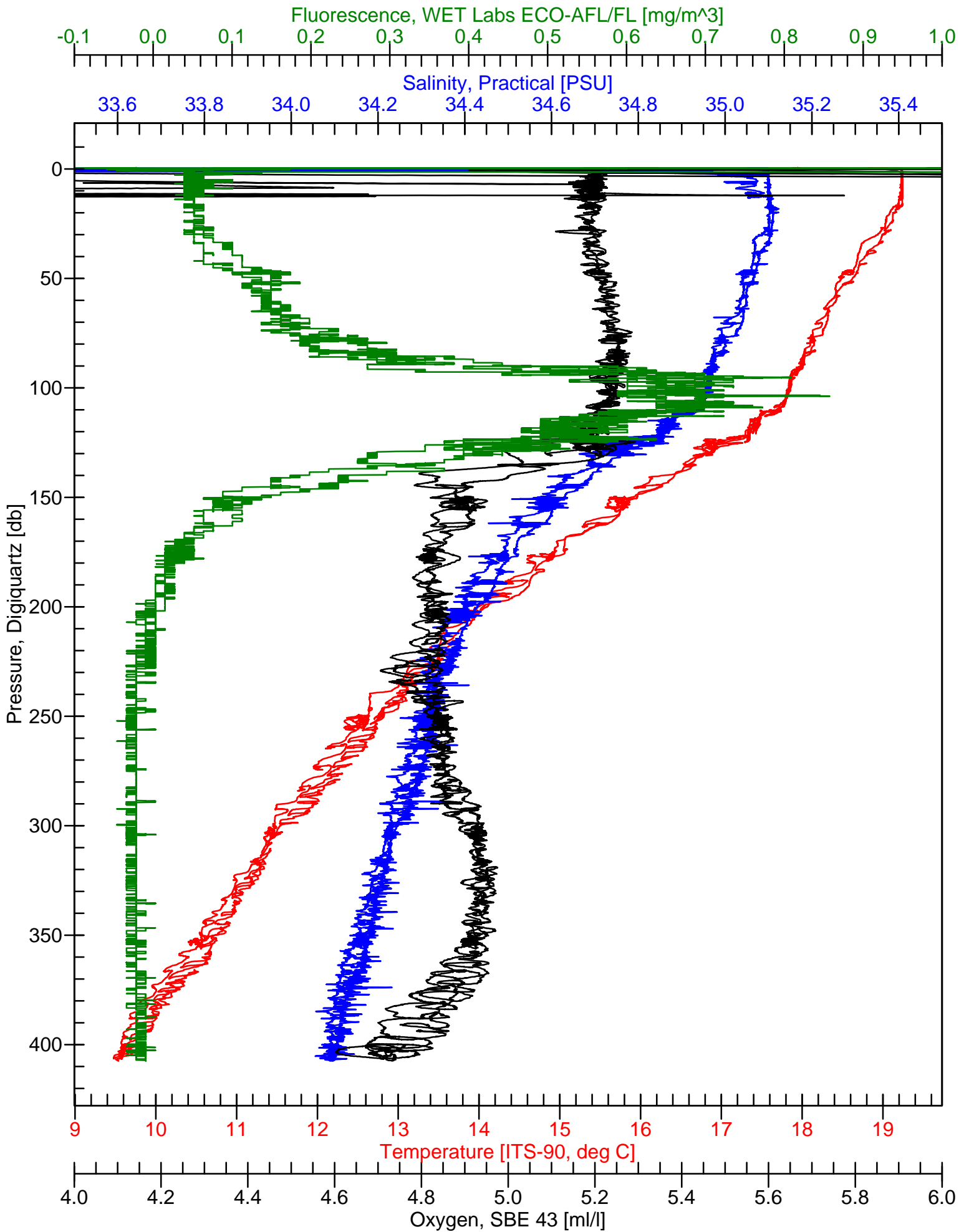
CTD CAST Logsheet

Station: 2	Cast: 2
Bottom (m): 5829	Date (UTC): 4/13/19
Time Start Logging UTC: 06:30	
Pressure on deck	Time (UTC)
Start: -0.2935	In water: 06:37
End: -0.3018	Out water: 07:23
Latitude N	Longitude W
Start: 31° 05.4329' N	Start: 158° 00.0696'
End: 31° 05.4290' N	End: 158° 00.0714'
Max Press: 402	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	400	06:54:21	401	✓	
2	350	56:30	350	✓	
3	300	58:38	302	✓	
4	250	07:00:40	254	✓	
5	200	02:45	200	✓	
6	175	04:30	177	✓	
7	150	06:10	151	✓	
8	125	07:40	125	✓	
9	120	07:08	121	✓	
10	115	07:09:01	114	✓	
11	110	07:10:16	111	✓	
12	105	07:10:56	107	✓	
13	100	07:11:40	100	✓	
14	95	07:12:23	94	✓	
15	90	07:12:59	90	✓	
16	85	07:13:46	85	✓	
17	75	07:14:37	77	✓	NOT MARKED
18	45	07:16:13	46	✓	- MARK 17/18
19	25	07:17:11	26	✓	
20	15	07:17:42	17	✓	
21	5	07:18:10	6	✓	
22					
23					
24					

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CTD High Resolution

Station # 2
 Cast # 2
 Operator(s): AW / TR

Date: 4/13/19 (UTC)
 Time: _____ (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Gases N2O	nuts	O-isotopes	PPO4	LLP/TDP	metals			
1	400	1	1			1	1			
2	350		1			1	1			
3	300	1	1			1	1			
4	250		1			1	1			
5	200	1	1	1		1	1			
6	175		1		1(1)	1	1			
7	150	1	1		1(2)	1	1			
8	125	1	1		1(3)	1	1			
9	120	1	1	1	1(4)	1	1			
10	115	1	1		1(5)	1	1			
11	110	1	1	1	1(6)	1	1			
12	105	1	1		1(7)	1	1			
13	100	1	1	1	1(8)	1	1			
14	95	1	1		1(9)	1	1			
15	90		1		1(10)	1	1			
16	85		1		1(11)	1	1			
17	75	1	1	1	1(12)	1	1			
18	45				1(13)		1			
19	25	1	1	1	1(14)	1	1			
20	15	1					1			
21	5	1		1						
22										
23										
24										

Notes:

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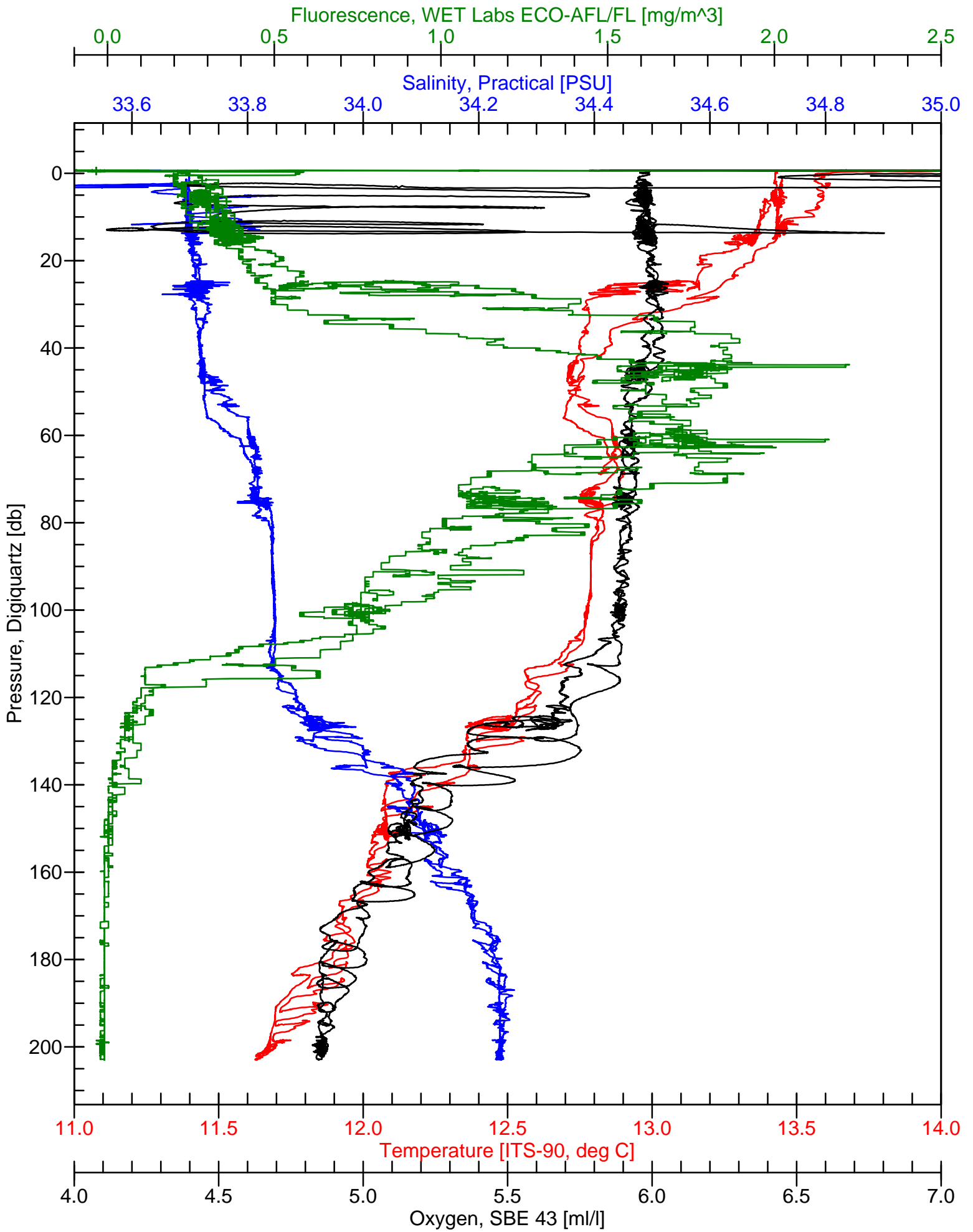
CTD CAST Logsheet

Station: 3	Cast: 1
Bottom (m): 5779	Date (UTC): 4/14/19
Time Start Logging UTC: 23:42	
Pressure on deck	Time (UTC)
Start: -0.5175	In water: 23:43
End: -0.5975	Out water: 00:13
Latitude N	Longitude W
Start: 36° 54.6213' N	Start: 158° 00.0256' W
End: 36° 54.6531' N	End: 158° 00.0421' W
Max Press: 202	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	Pressure readout working in doghouse. Picking 'depths' and targets in db.
CTD: UH OTG ROSETTE: SCOPE	Chlorophyll max

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	200	23:54:48	200	✓	
2	150	23:57:06	150	✓	
3	125	23:58:58	125	✓	
4	125	23:59:10	125	✓	
5	100	00:00:50	100	✓	
6	100	00:00:55	100	✓	
7	75	00:02:40	~73	✓	
8	75	00:02:45	~73	✓	
9	60	00:04:34	60	✓	DCM
10	60	00:04:39	60	✓	DCM
11	45	00:06:11	45	✓	
12	45	00:06:17	45	✓	
13	25	00:08:25	25	✓	
14	25	00:08:30	25	✓	
15	15	00:09:45	15	✓	
16	15			✓	
17	15			✓	
18	15			✓	
19	15			✓	
20	15			✓	
21	15			✓	
22	15			✓	
23	15	00:10:21		✓	
24	5	00:12:05	5	✓	

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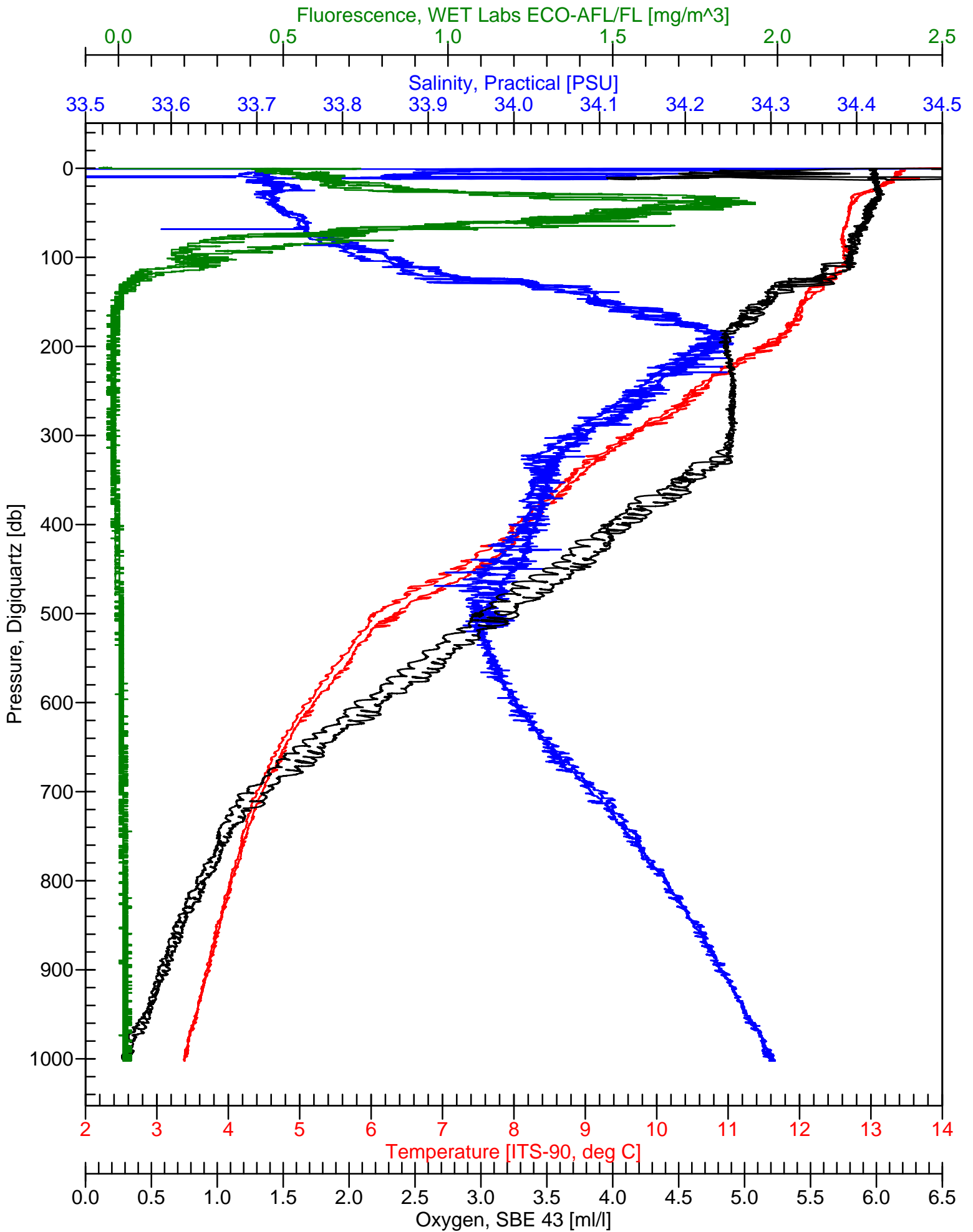
CTD CAST Logsheet

Station: 3	Cast: 3
Bottom (m): 5780	Date (UTC): 4/15/19
Time Start Logging UTC: 02:17	
Pressure on deck	Time (UTC)
Start: -0.3184	In water: 02:19
End: -0.3251	Out water: 03:44
Latitude N	Longitude W
Start: 36° 54.630'	Start: 158° 00.030'
End: 36° 54.631'	End: 158° 00.029'
Max Press: 1001	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	S2C2 was a trace metal CTD cast. Transmissometer a little low in air... 82% Beam Transmission. DCM: 40db MLD: 30db
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	1000	02:58:20	999	✓	O ₂ MINIMUM (still declining at 1000db)
2	750	03:04:58	751	✓	
3	500	03:11:10	500	✓	
4	400	03:14:19	401	✓	
5	350	03:16:25	350	✓	
6	300	03:18:20	300	✓	
7	250	03:20:15	251	✓	
8	200	03:22:05	199	✓	
9	175	03:23:16	176	✓	
10	150	03:25:05	152	✓	
11	125	03:27:10	125	✓	
12	100	03:30:20	100	✓	
13	75	03:32:15	74	✓	
14	70	03:33:45	73	✓	
15	65	03:34:41	66	✓	
16	60	03:35:26	60	✓	
17	55	03:36:25	55	✓	
18	50	03:37:13	51	✓	
19	45	03:38:17	43	✓	
20	40	03:39:11	40	✓	
21	35	03:39:52	35	✓	
22	25	03:40:59	25	✓	
23	15	03:41:50	15	✓	
24	5	03:43:10	5	✓	MARK OFF

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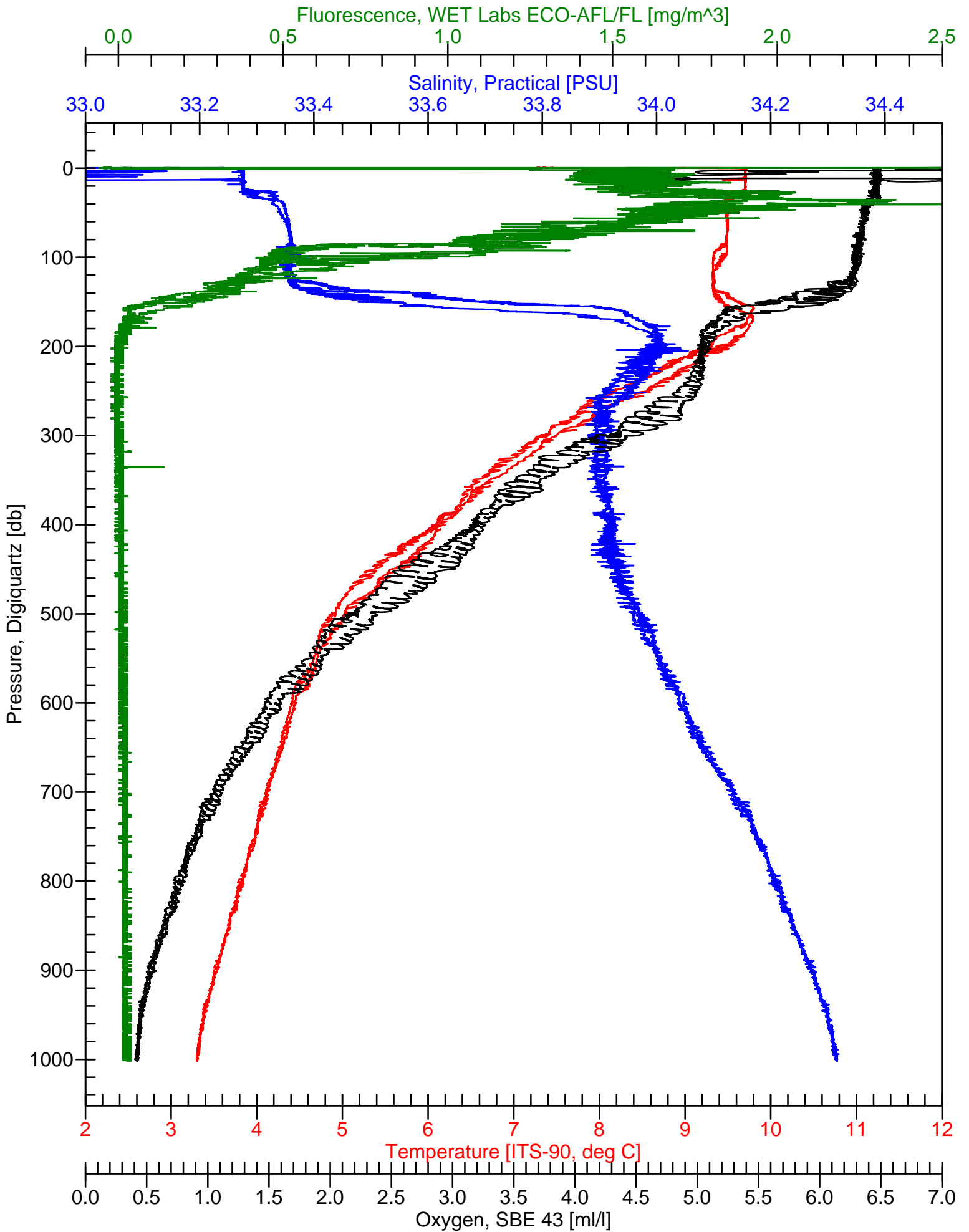
CTD CAST Logsheet

Station: 4	Cast: 1
Bottom (m): 5508	Date (UTC): 4/16/19
Time Start Logging UTC: 09:20	
Pressure on deck Start: -0.3370 End: -0.2188	Time (UTC) In water: 09:23 Out water: 11:02
Latitude N Start: 41° 40.570' End: 41° 40.5599'	Longitude W Start: 158° 02.3593' End: 158° 02.3584'
Max Press: 1001	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	Biogeochemical cast at "long station." T sensors differ by about 0.02°C. (Primary sensor is reading higher)
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	1000	10:02:45	1000	✓	
2	750	10:10:35	752	✓	
3	500	10:18:55	502	✓	
4	400	10:23:55	401	✓	
5	300	10:28:09	300	✓	
6	200	10:33:19	200	✓	
7	175	10:35:50	176	✓	
8	150	10:38:40	150	✓	
9	125	10:41:20	125	✓	
10	100	10:44:10	102	✓	
11	100	10:44:13	102	✓	
12	85	10:46:15	86	✓	
13	75	10:47:50	75	✓	
14	75	10:47:53	76	✓	
15	45	10:51:40	45	✓	
16	45	10:51:48	46	✓	
17	25	10:54:51	25	✓	
18	25	10:54:54	25	✓	
19	15	10:56:50	15	✓	
20	15	10:56:50	15	✓	
21	5	11:00:01	5	✓	
22	5	11:00:01	5	✓	
23					
24					

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GRADIENTS 3

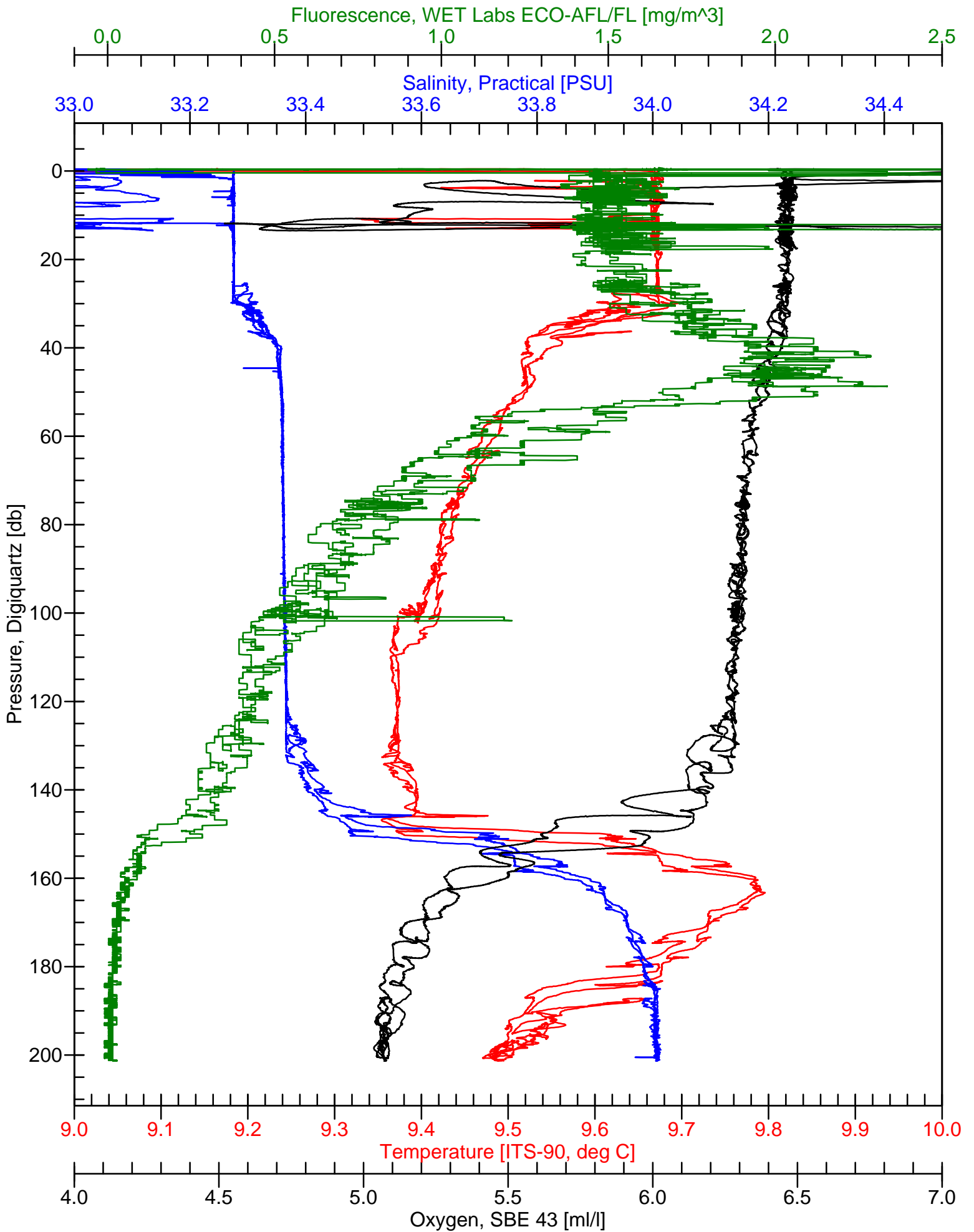
CTD CAST Logsheet

Station: 4	Cast: 3
Bottom (m): 5509	Date (UTC): 4/16/19
Time Start Logging UTC: 12:50	
Pressure on deck	Time (UTC)
Start: 0.3540	In water: 12:53
End: -0.3048	Out water: 13:20
Latitude N	Longitude W
Start: 41° 40.5286'	Start: 158° 02.3758'
End: 41° 40.5293'	End: 158° 02.3767'
Max Press: 201	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	100	13:08:03	99	✓	
2	100		101	✓	
3	75	13:10:10	75	✓	
4	75		75	✓	
5	45	13:11:56	45	✓	
6	45		45	✓	
7	25	13:14:00	26	✓	
8	25		26	✓	
9	15	13:15:05	15	✓	
10	15			✓	
11	15			✓	
12	15			✓	
13	15			✓	
14	15			✓	
15	15			✓	
16	15			✓	
17	15			✓	
18	5		5	✓	
19	5	13:16:30		✓	
20	5			✓	
21	5			✓	
22	5			✓	
23	5			✓	
24	5			✓	

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CTD PP/Gas array cast and Diel 1

Station # 4
 Cast # 3
 Operator(s): _____

Date: _____ (UTC)
 Time: _____ (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	¹⁸ O-GPP	¹⁴ C-PP	³³ P-PO ₄ (KB)	Chl/FCM	LLP/PPO ₄	Armbr	Ingall core	Lindell	Ingall 13C	Juranek
1	100		5(3)	1	1.5	1.5					
2	100	6									
3	75		5(4)	1	1.5	1.5					
4	75	6									
5	45		5(5)	1	1.5	1.5					
6	45	6									
7	25		5(6)	1	1.5	1.5					
8	25	6									
9	15		5(7)	1	1.5	1.5					
10	15	6									
11	15							7	1		1
12	15						10				
13	15						10				
14	15						10				
15	15							10			
16	15							10			
17	15							10			
18	5		5(8)	1	1.5	1.5					
19	5	6									
20	5									10	
21	5									10	
22	5									10	
23	5									10	
24	5									10	

Notes:

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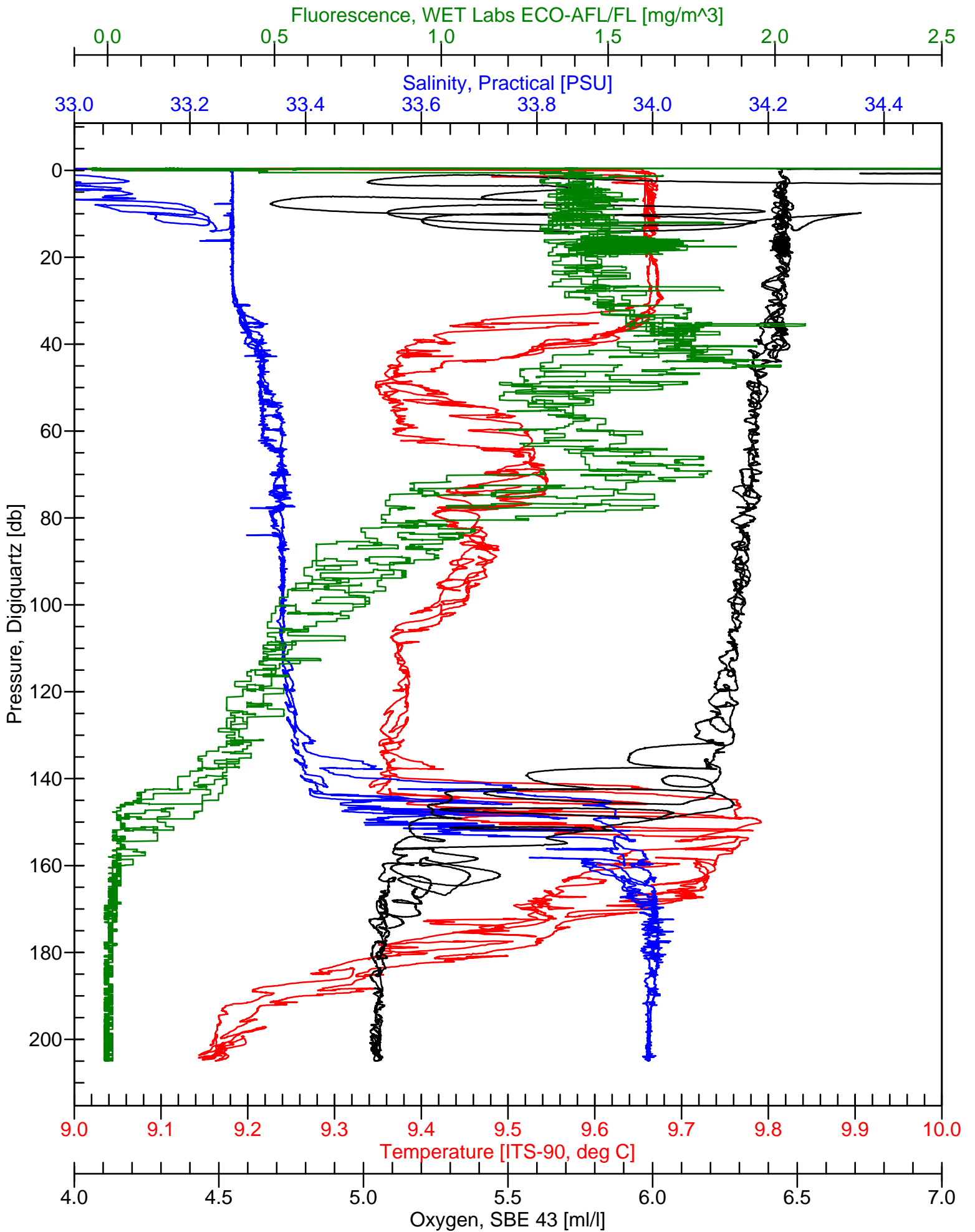
CTD CAST Logsheet

Station: 4	Cast: 4
Bottom (m): 5619	Date (UTC): 4/16/19
Time Start Logging UTC: 15:40	
Pressure on deck	Time (UTC)
Start: 0.3453	In water: 15:46
End: -0.2963	Out water: 16:17
Latitude N	Longitude W
Start: 41° 40.8408	Start: 158° 03.014
End: 41° 40.855	End: 158° 2.993'
Max Press: 200	Operators: TR / AW

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	double chl peaks (40m, 75m)
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	15	16:07:47	18	✓	
2			17.45	✓	
3			15.98	✓	
4			18.81	✓	
5			18.02	✓	
6			17.45	✓	
7			17.60	✓	
8		16:09:20	16.45	✓	
9			17.12	✓	
10			15.23	✓	
11			16.23	✓	
12			15.98	✓	
13			17.98	✓	
14		16:10:32	18.45	✓	
15			15.81	✓	
16			16.21	✓	
17			17.51	✓	
18		16:11:14	17.53	✓	
19			16.23	✓	
20			16.12	✓	
21		16:11:57	17.02	✓	
22			16.85	✓	
23			17.91	✓	
24	↓	16:12:43	17.12	✓	

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GRADIENTS 3

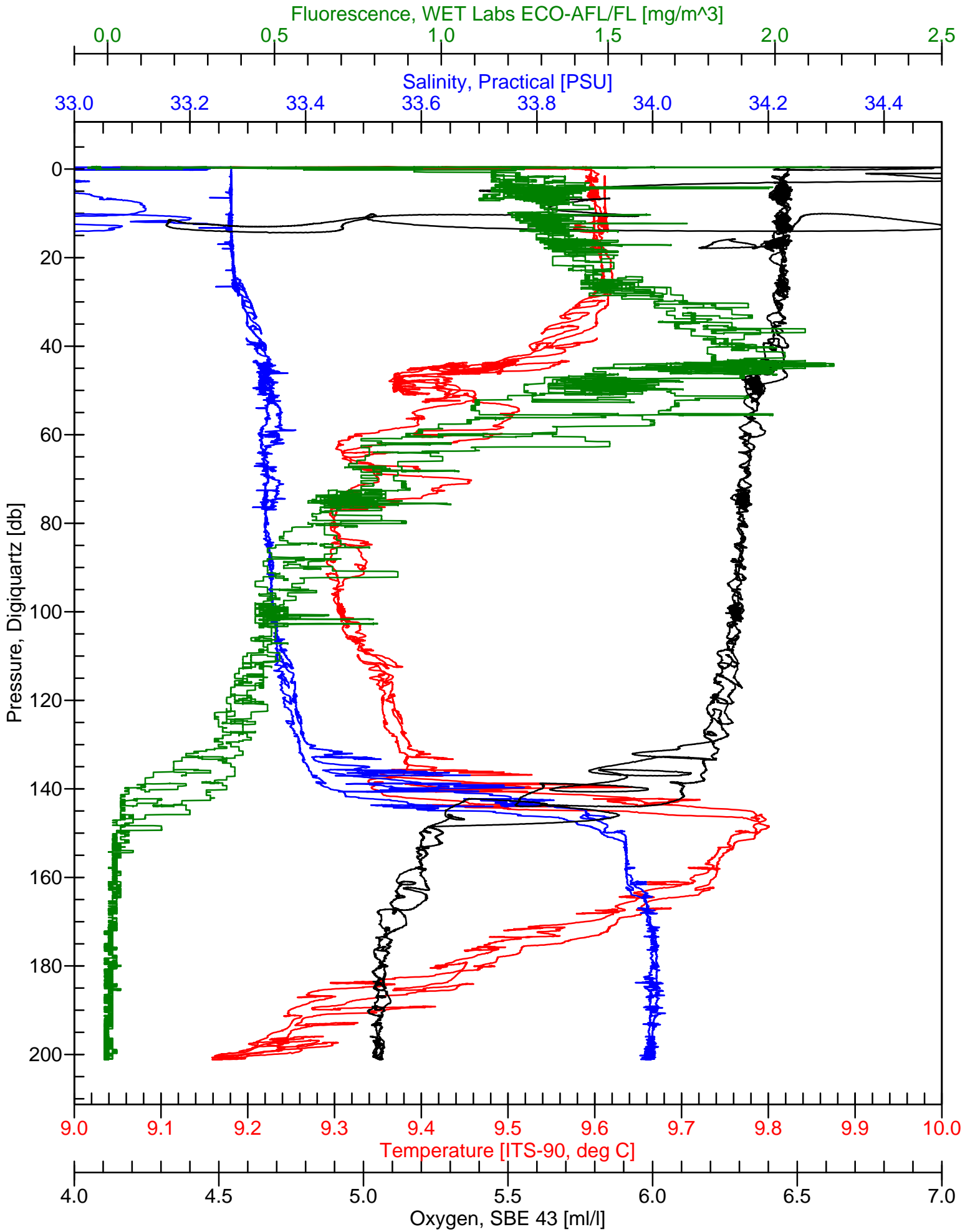
CTD CAST Logsheet

Station: 4	Cast: 6
Bottom (m): 200	Date (UTC): 4/16/19
Time Start Logging UTC:	
Pressure on deck	Time (UTC) 17:30
Start: -0.15	In water: 17:43
End: -0.39	Out water: 18:18
Latitude N	Longitude W
Start: 41° 40.778	Start: 158° 3.077
End: 41° 40.774	End: 158° 3.085
Max Press: 200	Operators: LJ

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	~140m "Mixed" layer? Chl max 30-60m
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	100	17:58	100	✓	
2	100		100	✓	
3	100	17:59	99	✓	
4	75	18:00	75	✓	
5	75		75	✓	
6	75		75	✓	
7	75		74	✓	
8	75	18:02	74	✓	
9	50/DLM	18:03:48	49.1	✓	
10	50/DLM		49	✓	
11	50/DLM		47	✓	
12	50/DLM		49	✓	
13	50/DLM	18:05:02	50	✓	
14	45	18:06:10	45	✓	mark scans 12-15 meters
15	45		45	✓	
16	45	18:07:37	45	✓	
17	25	18:09:30	25.2	✓	
18	25	18:09:58	25	✓	
19	15	18:11:00	17.2	✓	
20	15		16	✓	
21	15		16	✓	
22	15		16	✓	
23	15	18:12:37	15	✓	
24	5	18:14:00	5.0	✓	

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SCOPE-Gradients 3 (KM1906)

Molecular Depth Profile

Station # 4
 Cast # 6
 Operator(s): LJ

Date: 4/16/19 (UTC)
 Time: 17:43 (UTC)
 Time: local

Coordinates: °N °W

Rosette Position	Desired Depth	Armbrust Transcript	Zehr	Annette				
1	100			1				
2	100		10					
3	100		10					
4	75			1				
5	75	10						
6	75	10						
7	75		10					
8	75		10					
9	DCM			1				
10	DCM	10						
11	DCM	10						
12	DCM		10					
13	DCM		10					
14	45		10					
15	45		10					
16	45			1				
17	25		10					
18	25		10					
19	15	10						
20	15	10						
21	15		10					
22	15		10					
23	15			1				
24	5		10					

Notes:

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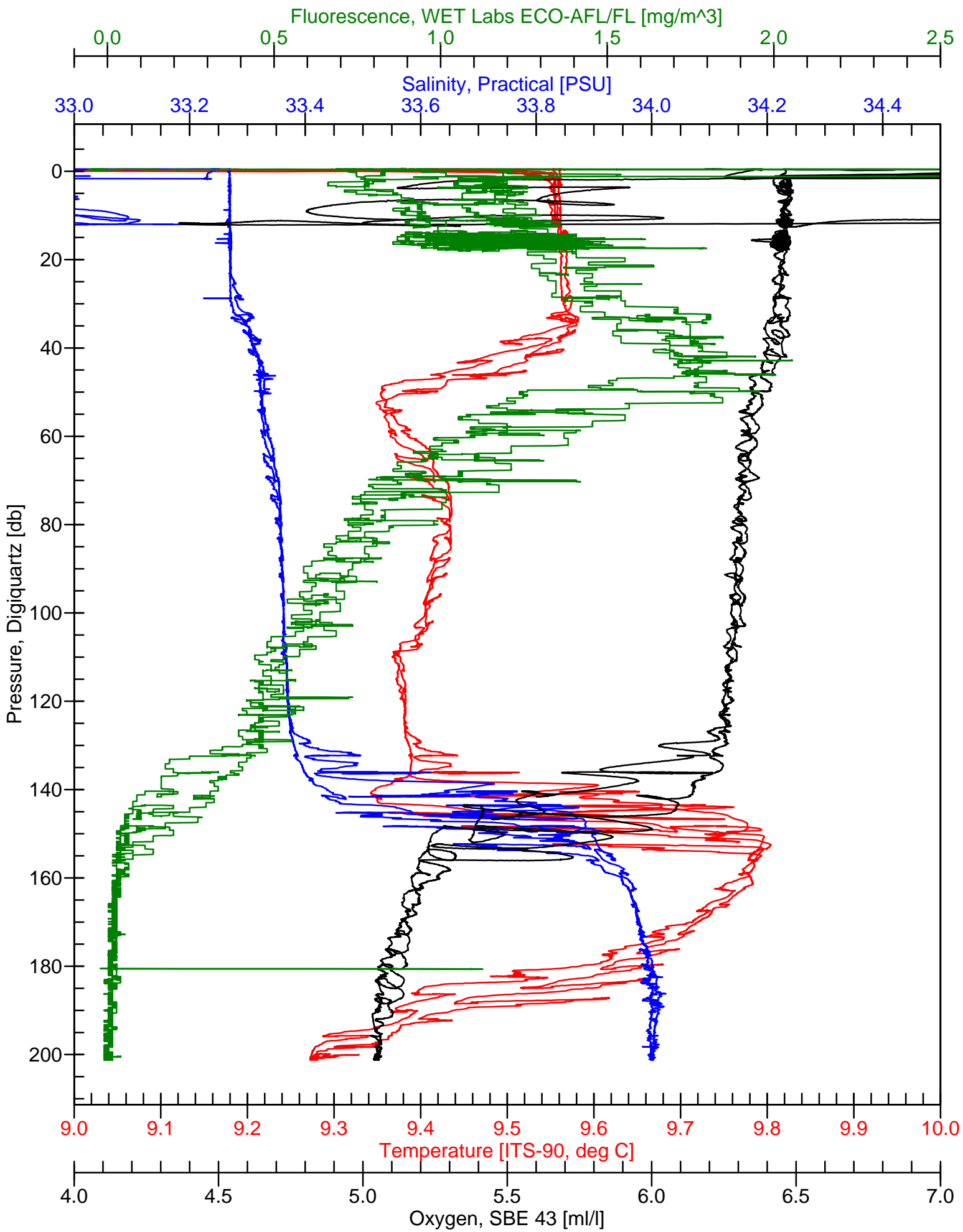
CTD CAST Logsheet

Station: 4	Cast: 7
Bottom (m): 200	Date (UTC): 4/16/19
Time Start Logging UTC: 19:10	
Pressure on deck	Time (UTC)
Start: -0.39	In water: 19:17
End: -0.37	Out water: 19:44
Latitude N	Longitude W
Start: 41°40.700	Start: 150 3.084
End: 41°40.700	End: 150 3.084
Max Press: 200	Operators: LJ

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	CIR max ~ 50m MIXED LAYER ~ 140m DIEL 3
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	15	19:34:27	15	✓	
2	15		15	✓	
3	15		15	✓	
4	15		15	✓	
5	15	19:35:34	15	✓	
6	15		15	✓	
7	15		15	✓	
8	15		15	✓	
9	15		15	✓	
10	15	19:36:49	15	✓	
11	15		15	✓	
12	15		15	✓	
13	15		14	✓	
14	15		15	✓	
15	15		15	✓	
16	15		16	✓	
17	15		15	✓	
18	15		15	✓	
19					
20					
21					
22					
23					
24					

S004C007.cnv



SCOPE-Gradients 3 (KM1906)

Diel 3

Station # 4
 Cast # 7
 Operator(s): LJ

Date: 4/16/19 (UTC)
 Time: 19:17 (UTC)
 Time: local

Coordinates: °N °W

Rosette Position	Desired Depth	Armbrust	Ingall core	Lindell	Lindell Xtra	Jurane k O2		
1	tbd							
2	tbd							
3	tbd							
4	tbd							
5	tbd							
6	tbd							
7	tbd							
8	15							
9	15				10			
10	15					1		
11	15			1				
12	15		7					
13	15	10						
14	15	10						
15	15	10						
16	15		10					
17	15		10					
18	15		10					
19	tbd							
20	tbd							
21	tbd							
22	tbd							
23	tbd							
24	tbd							

Notes: Bottle 6 misfire - lanyard broke

KM1906

GRADIENTS 3

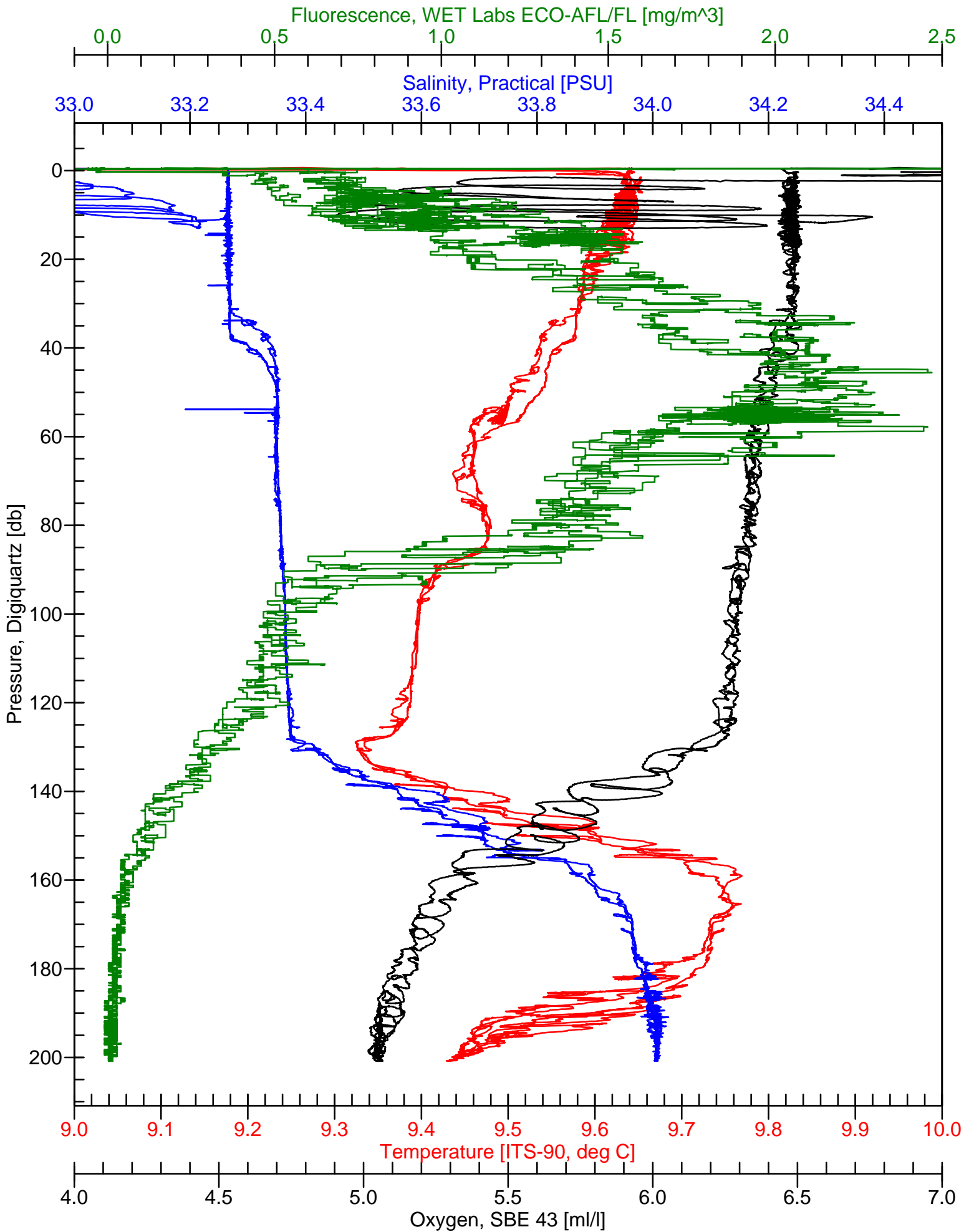
CTD CAST Logsheet

Station: 4	Cast: 8
Bottom (m):	Date (UTC): 4/16/19
Time Start Logging UTC:	23:00
Pressure on deck	Time (UTC)
Start: -0.29	In water: 23:11
End: -0.35	Out water: 23:46
Latitude N	Longitude W
Start: 41° 40.076	Start: 158 03.064
End: 41° 40.849	End: 158 03.240
Max Press: 200	Operators: LJ

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	ML ~ 42m
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	55	23:33	55	✓	
2	55		55	✓	
3	55		54	✓	
4	55		55	✓	
5	55	23:34	55	✓	
6	55		55	✓	
7	55		55	✓	
8	55		56	✓	
9	55	23:35	55	✓	
10	15	23:39	16	✓	
11	15		15	✓	
12	15		15	✓	
13	15		15	✓	
14	15		15	✓	
15	15		15	✓	
16	15		15	✓	
17	15		15	✓	
18	15	23:41	15	✓	
19	5	23:43	6	✓	
20	5		5	✓	
21	5		5	✓	
22	5		4.9	✓	
23	5		5.5	✓	
24	5	23:44	5	✓	

S004C008.cnv



SCOPE-Gradients 3 (KM1906)

Diel 4

Station # 4
 Cast # 8
 Operator(s): _____

Date: _____ (UTC)
 Time: ~ 1300 HST (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Armbrust	Ingall core	Lindell	Zehr grazer	Juranek O2		
1	tbd							
2	tbd							
3	tbd							
4	DCM				10			
5	DCM				10			
6	DCM				10			
7	DCM				10			
8	DCM				10			
9	DCM				10			
10	15					1		
11	15			1				
12	15		7					
13	15	10						
14	15	10						
15	15	10						
16	15		10					
17	15		10					
18	15		10					
19	5			10				
20	5			10				
21	5			10				
22	5			10				
23	5			10				
24	5			10				

Notes:

KM1906

GRADIENTS 3

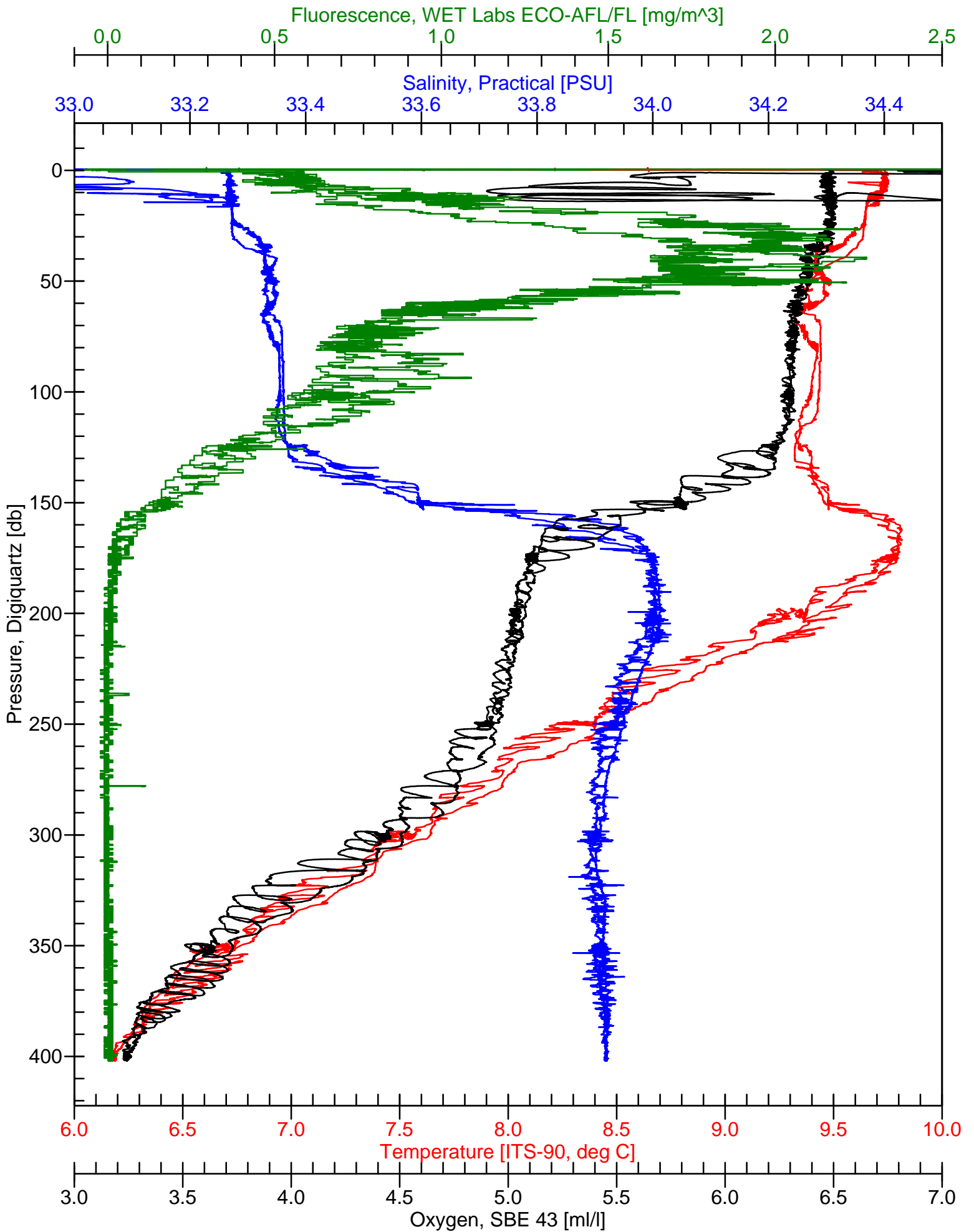
CTD CAST Logsheet

Station: 4	Cast: 10
Bottom (m): 400	Date (UTC): 17 APR 19
Time Start Logging UTC: 01:11:29	02:16:59
Pressure on deck	Time (UTC)
Start: -0.18	In water: 01:14:35
End: -0.30	Out water: 02:15:09
Latitude N	Longitude W
Start: 41° 40.826' N	Start: 158° 3.038' W
End: 41° 40.835' N	End: 158° 3.038' W
Max Press: .40	Operators: AW/RT

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	DCM @ 42 m ML @ 35 m Secondary ML @ 150 m
CTD: UH OTG ROSETTE: SCOPE	High Resolution

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	400	01:32:30	400.01	✓	
2	350	01:35:18	350.5	✓	
3	300	01:38:40	299.9	✓	
4	250	01:41:20	250.4	✓	
5	200	01:43:40	201.1	✓	
6	175	01:45:50	176.1	✓	
7	150	01:47:52	150.7	✓	
8	125	01:49:48	125.0	✓	
9	100	01:51:58	100.6	✓	
10	80	01:54:01	79.3	✓	
11	75	01:55:40	76.1	✓	
12	70	01:57:00	69.9	✓	
13	65	01:58:09	65.5	✓	
14	60	01:59:38	59.5	✓	
15	55	02:01:14	54.2	✓	
16	50	02:03:18	49.9	✓	
17	45	02:04:40	45.2	✓	
18	40	02:05:50	39.4	✓	
19	35	02:07:19	34.2	✓	
20	30	02:09:10	30.0	✓	
21	25	02:10:27	24.7	✓	
22	15	02:11:48	15.5	✓	
23	5	02:13:07	4.5	✓	
24					

S004C010.cnv



SCOPE-Gradients 3 (KM1906)

CTD High Resolution

Station # 4
 Cast # 10
 Operator(s): AW

Date: 4/16/19 (UTC)
 Time: 1:11:19 (UTC)
 Time: local

Coordinates: °N °W

Rosette Position	Desired Depth	gases	nuts	O-isotopes	PPO4	LLN/LLP	DON/DOP	metals		
1	400							0.3		
2	350							0.3		
3	300							0.3		
4	250							0.3		
5	200			1				0.3		
6	175									
7	150							0.3		
8	125		1			1	1	0.3		
9	100	1	1	1	1	1	1	0.3		
10	80	1	1	1	2	1	1	0.3		
11	75	1	1		3	1	1	0.3		
12	70	1	1	1	4	1	1	0.3		
13	65	1	1		5	1	1	0.3		
14	60	1	1		6	1	1	0.3		
15	55	1	1	1	7	1	1	0.3		
16	50	1	1		8	1	1	0.3		
17	45	1	1	1	9	1	1	0.3		
18	40	1	1		10	1	1	0.3		
19	35	1	1		11	1	1	0.3		
20	30	1	1		12	1	1	0.3		
21	25	1	1		13	1	1	0.3		
22	15	1	1	1	14	1	1			
23	5	1	1		15	1	1			
24										

Notes:

KM1906

GRADIENTS 3

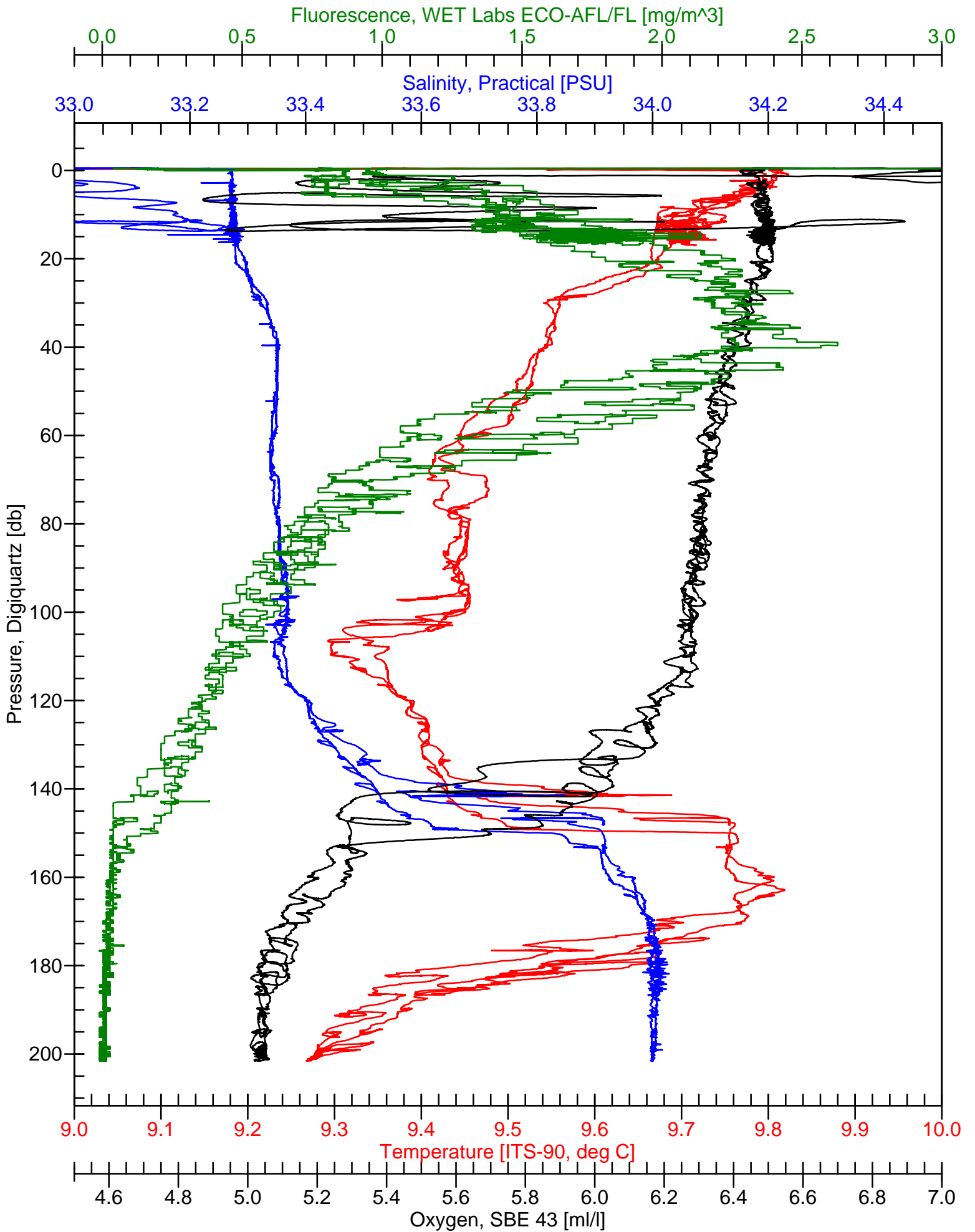
CTD CAST Logsheet

Station: 4	Cast: 11
Bottom (m): 5624	Date (UTC): 4/17/19
Time Start Logging UTC: 03:19	
Pressure on deck	Time (UTC)
Start: -0.3500	In water: 03:21
End: -0.37	Out water: 03:46:17
Latitude N	Longitude W
Start: 41° 40.8895	Start: 158° 02.9938
End: 41° 40.896	End: 158° 3 000W
Max Press: 199	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments	
1	200	03:33:19	199	✓		
2	15	03:40:13	147	✓		
3	↓		142	✓		
4			155	✓	Check vacuum	
5			151	✓		
6			153	✓		
7			138	✓		
8			157	✓		
9			153	✓		
10		15	03:42:01	152	✓	
11		15		146	✓	
12	15		148	✓		
13	15		138	✓		
14	15		142	✓		
15	15		158	✓		
16	15		149	✓		
17	15		152	✓		
18	15		159	✓		
19						
20						
21						
22						
23						
24						

S004C011.cnv



SCOPE-Gradients 3 (KM1906)

Diel 5

Station # 4
 Cast # 11
 Operator(s): _____

Date: _____ (UTC)
 Time: _____ (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Armbrust	Ingall core	Lindell	Juranek O2			
1	tbd							
2	tbd							
3	tbd							
4	tbd							
5	tbd							
6	tbd							
7	tbd							
8	tbd							
9	tbd							
10	15				1			
11	15			1				
12	15		7					
13	15	10						
14	15	10						
15	15	10						
16	15		10					
17	15		10					
18	15		10					
19	tbd							
20	tbd							
21	tbd							
22	tbd							
23	tbd							
24	tbd							

Notes:

KM1906

GRADIENTS 3

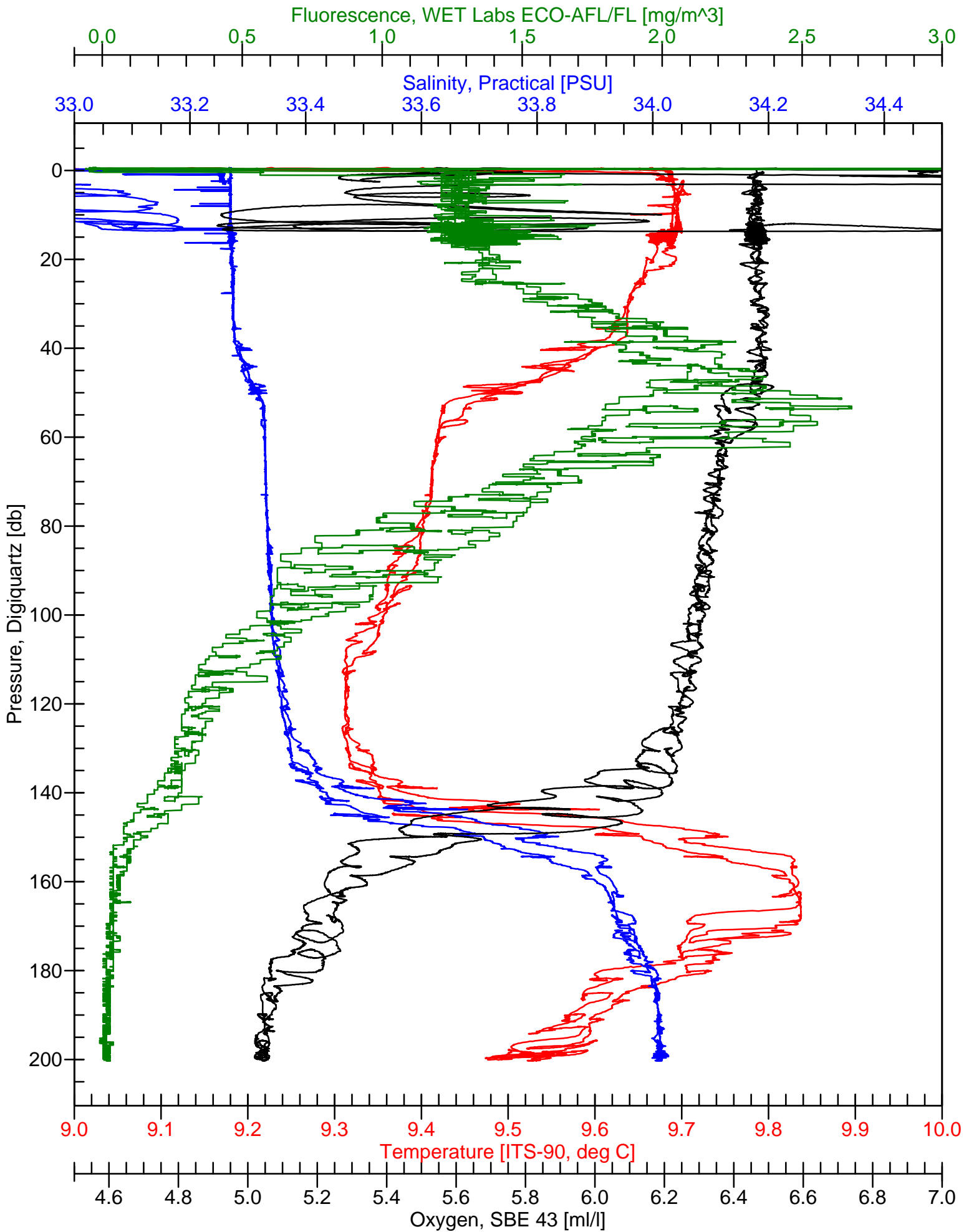
CTD CAST Logsheets

Station: 4	Cast: 13
Bottom (m): 5132	Date (UTC): 4/17/19
Time Start Logging UTC: 08:45	
Pressure on deck Start: -0.2611 End: -0.2804	Time (UTC) In water: 08:47 Out water: 09:14
Latitude N Start: 41° 38.8953' End: 41° 38.8934'	Longitude W Start: 157° 55.0241' End: 157° 55.0259'
Max Press: 202	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1					
2					
3					
4	15	09:11:05	15	✓	Fired for vacuum test
5					
6					
7					
8					
9	15	09:07:07	15-17	✓	
10	↓		↓	✓	
11				✓	
12				✓	
13				✓	
14				✓	
15				✓	
16				✓	
17				✓	
18				✓	
19	↓	09:07:54	↓	✓	
20					
21					
22					
23					
24					

S004C013.cnv



KM1906

GRADIENTS 3

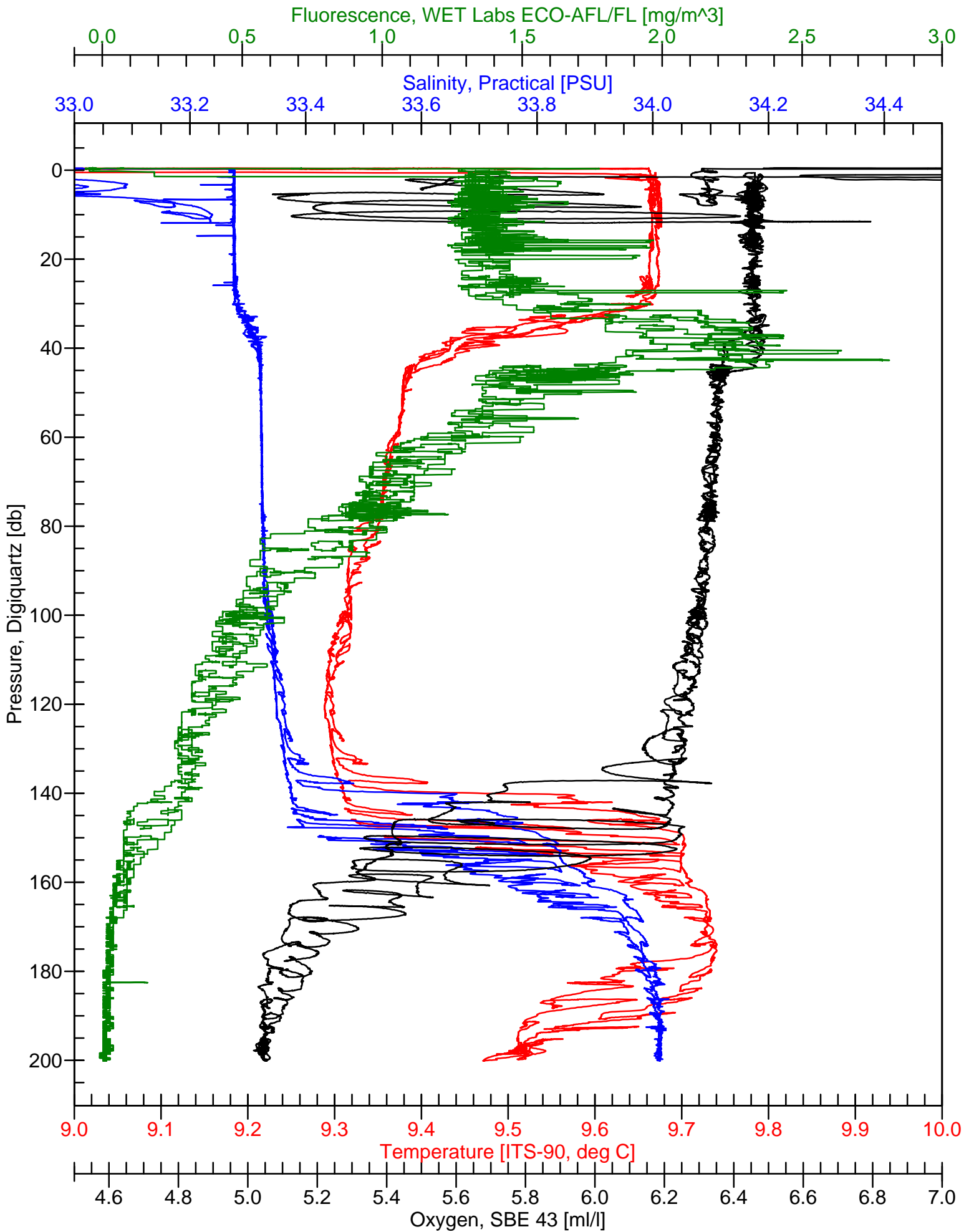
CTD CAST Logsheet

Station: 4	Cast: 15
Bottom (m):	Date (UTC): 4/17/19
Time Start Logging UTC: 12:25	
Pressure on deck	Time (UTC)
Start: -0.3508	In water: 12:28
End: -0.2458	Out water: 13:04
Latitude N	Longitude W
Start: 41° 37.058'	Start: 157° 55.814'
End: 41° 37.1029'	End: 157° 55.8014'
Max Press: 200	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	100	12:47:35	101	✓	
2	100	↓	↓	✓	
3	75	12:49:45	75	✓	
4	75	↓	↓	✓	
5	45	12:54:05	45	✓	
6	45	↓	↓	✓	
7	25	12:55:45	25	✓	
8	25	↓	↓	✓	
9	15	12:58:05	15	✓	
10	15	↓	↓	✓	
11	15	↓	↓	✓	
12	15	↓	↓	✓	
13	15	↓	↓	✓	
14	15	↓	↓	✓	
15	15	↓	↓	✓	
16	15	↓	↓	✓	
17	15	↓	↓	✓	
18	5	12:59:57	5	✓	
19	5	↓	↓	✓	
20	5	↓	↓	✓	
21	5	↓	↓	✓	
22	5	↓	↓	✓	
23	5	↓	↓	✓	
24	5	↓	↓	✓	

S004C015.cnv



SCOPE-Gradients 3 (KM1906)

CTD PP/Gas array cast

Station # 4
 Cast # 15
 Operator(s): _____

Date: _____ (UTC)
 Time: ~2:00 HST (UTC)
 Time: _____ local

Coordinates: °N

Rosette Position	Desired Depth	¹⁸ O-GPP	¹⁴ C-PP	³³ P-PO ₄ (KB)	Chl/FCM	LLP/PPO ₄	Armbr	Ingall core	Lindell	White 15N	Juranek
1	100		5(3)	1	1.5	1.5					
2	100	6									
3	75		5(4)	1	1.5	1.5					
4	75	6									
5	45		5(5)	1	1.5	1.5					
6	45	6									
7	25		5(6)	1	1.5	1.5					
8	25	6									
9	15		5(7)	1	1.5	1.5					
10	15	6									
11	15							7	1		1
12	15						10				
13	15						10				
14	15						10				
15	15							10			
16	15							10			
17	15							10			
18	5		5(8)	1	1.5	1.5					
19	5	6									
20	5									10	
21	5									10	
22	5										
23	5										
24	5										

Notes:

KM1906

GRADIENTS 3

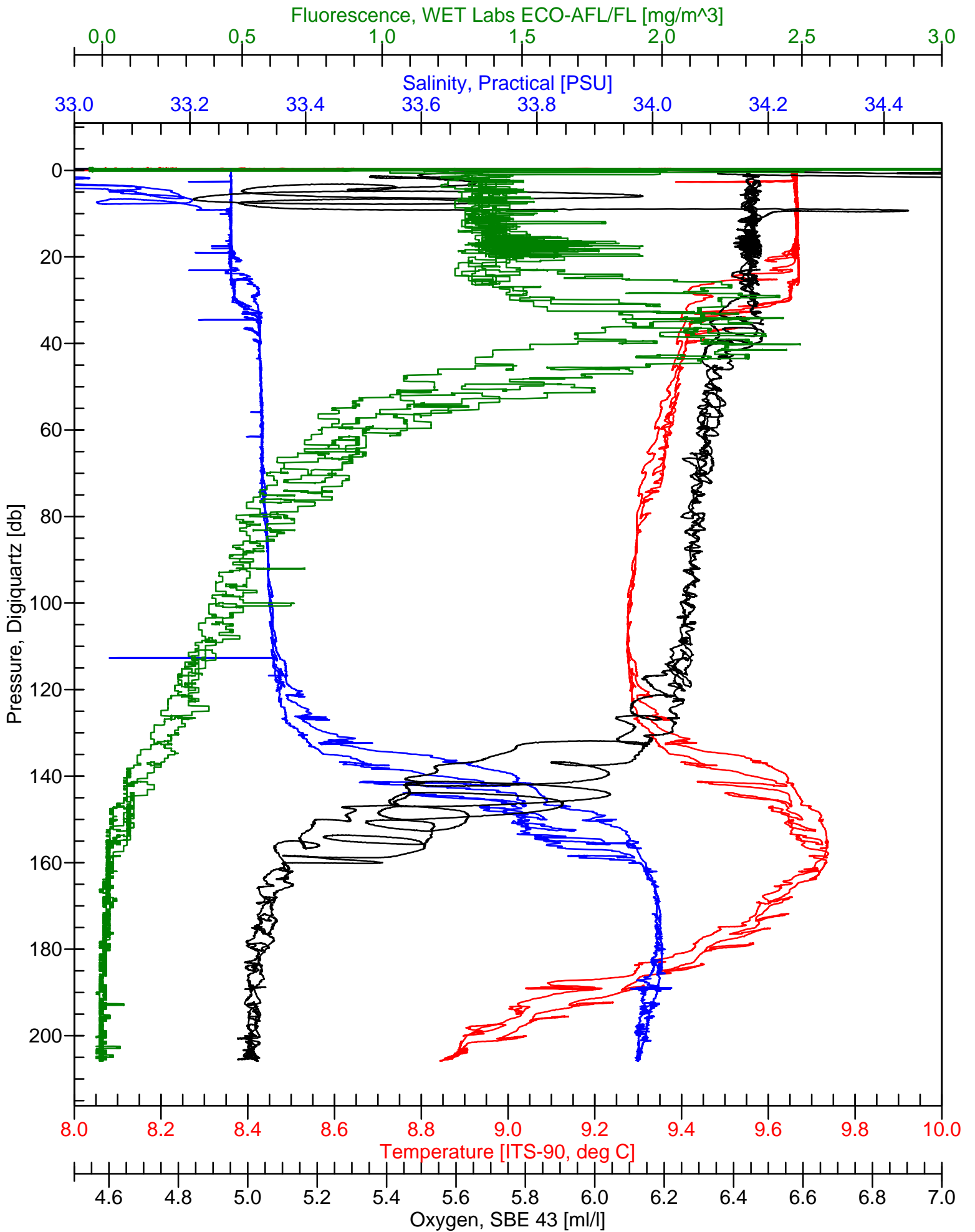
CTD CAST Logsheet

Station: 4	Cast: 16
Bottom (m): 200	Date (UTC): 4/17/19
Time Start Logging UTC:	
Pressure on deck	Time (UTC)
Start: -0.2539	In water: 15:34
End: -0.290	Out water: 16:04
Latitude N	Longitude W
Start: 41° 37.109	Start: 157° 55.807
End: 41° 37.097	End: 157° 56.214
Max Press: 200	Operators: LJ

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	DCM ~ 40 m Slight ML at ~ 40 m Bigger Δ at ~ 130 m
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	15	15:56	15	✓	
2	15		15	✓	
3	15		15	✓	
4	15		15	✓	
5	15		15	✓	
6	15		15	✓	
7	15	15:58:20	16	✓	
8	15		15	✓	
9	15		16	✓	
10	15		15	✓	
11	15		↓	✓	
12	15		↓	✓	
13	15		↓	✓	
14	15		↓	✓	
15	15		↓	✓	
16	15		↓	✓	
17	15	16:01	16	✓	
18	15		15	✓	
19	15		↓	✓	
20	15		↓	✓	
21	15		↓	✓	
22	15		↓	✓	
23	15		↓	✓	
24	15	16:02:10	↓	✓	

S004C016.cnv



SCOPE-Gradients 3 (KM1906)

Diel 8

Station # 4
 Cast # 16
 Operator(s): _____

Date: _____ (UTC)
 Time: _____ (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Armbrust	Ingalls core	Lindell	Ingalls GBT	Jurane k O2		
1	15				10			
2	15				10			
3	15				10			
4	15				10			
5	15				10			
6	15				10			
7	15				10			
8	15				10			
9	15				10			
10	15					1		
11	15			5				
12	15		7					
13	15	10						
14	15	10						
15	15	10						
16	15		10					
17	15		10					
18	15		10					
19	15				10			
20	15				10			
21	15				10			
22	15				10			
23	15			5				
24	15			5				

Notes:

KM1906

GRADIENTS 3

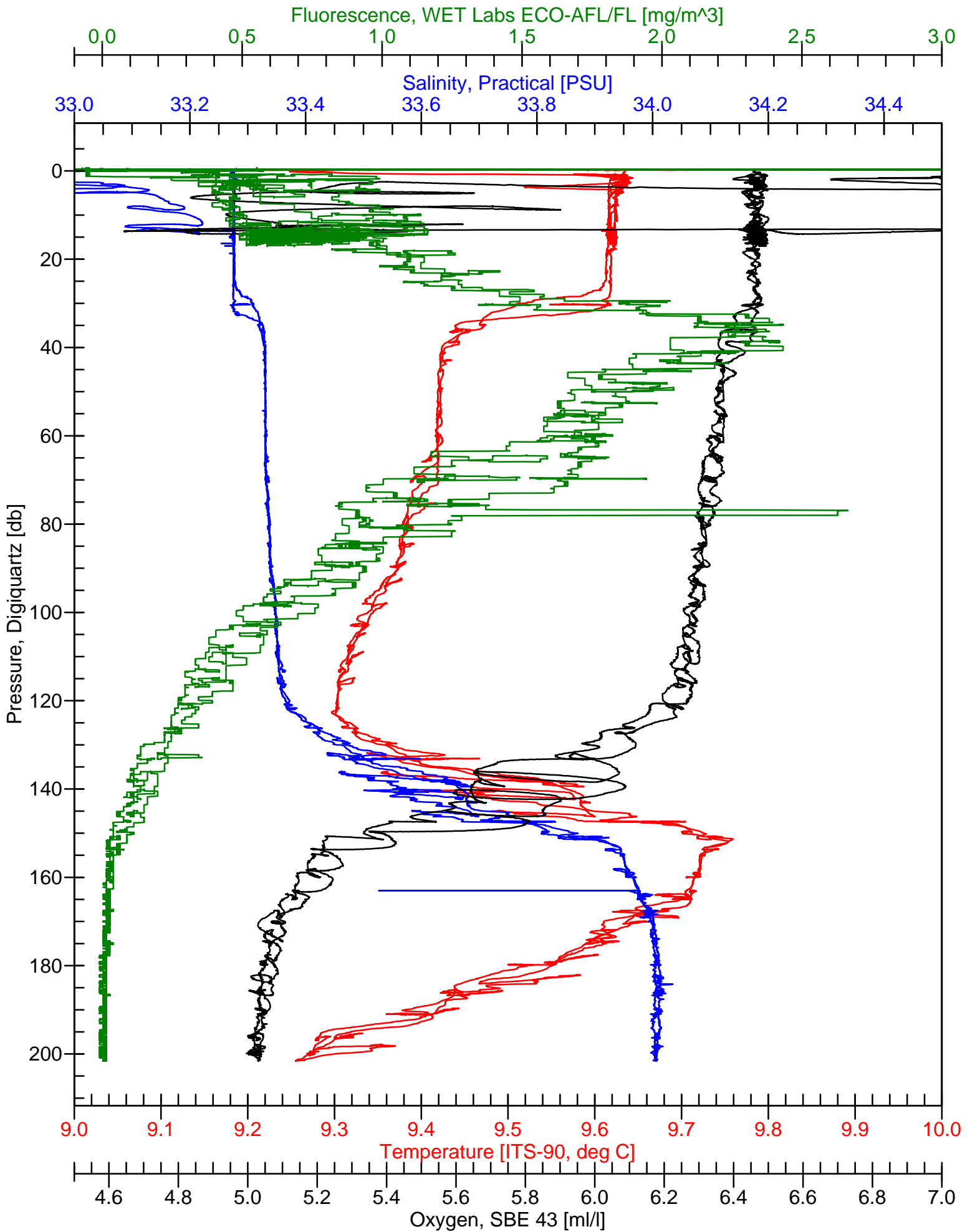
CTD CAST Logsheet

Station: 4	Cast: 18
Bottom (m):	Date (UTC): 4/17/19
Time Start Logging UTC:	4/17/19 19:22
Pressure on deck	Time (UTC)
Start: -0.20	In water: 19:31
End: -0.20	Out water: 19:57
Latitude N	Longitude W
Start: 41° 39.16	Start: 157 56.168
End: 41° 39.16	End: 157 56.168
Max Press: 200	Operators: LJ

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	Diel 9 DCM ~ 40 m (Beard 30-80 m) ML ~ 30 m (weak gradient) another "kink" at 140 m
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	15	19:48:32	15	✓	
2	15				
3	15				
4	15				
5	15				
6	15				
7	15				
8	15				
9	15				
10	15	19:50:18		15	✓
11	15				
12	15				
13	15				
14	15				
15	15				
16	15				
17	15				
18	15	19:51:40	15	✓	
19					
20					
21					
22					
23					
24					

S004C018.cnv



KM1906

GRADIENTS 3

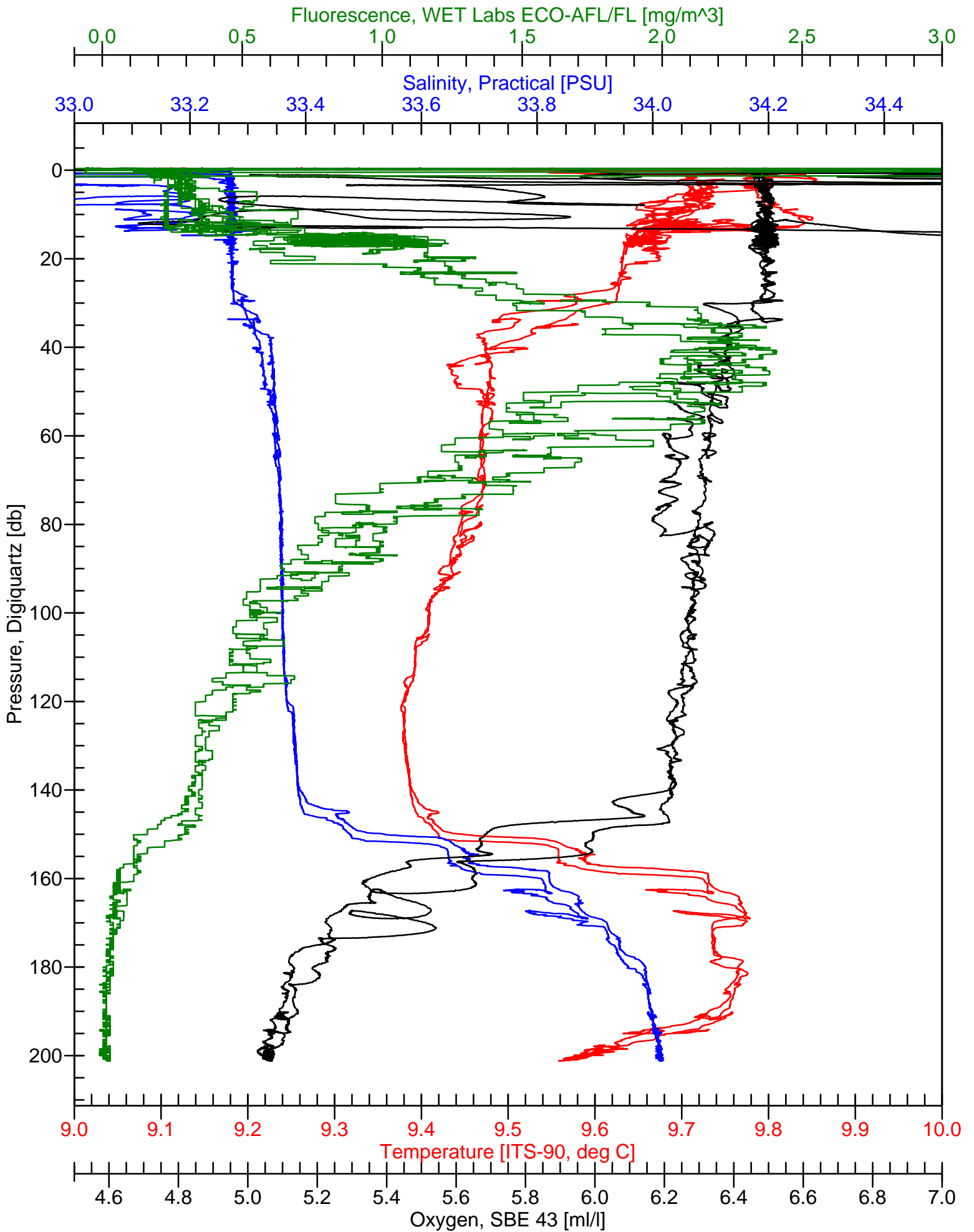
CTD CAST Logsheet

Station: 4	Cast: 19
Bottom (m):	Date (UTC): 4/17/19
Time Start Logging UTC:	23:05:27
Pressure on deck	Time (UTC)
Start: -0.17	In water: 23:20
End: -0.3	Out water: 23:44
Latitude N	Longitude W
Start: 41° 39.253	Start: 157° 56.652
End: 41° 39.259	End: 157° 56.650
Max Press: 200	Operators: LJ

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	DIEL 10 DCM ~ 40m
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	15	23:36	15	✓	
2	15		↓	↓	
3	15		↓	↓	
4	15		↓	↓	
5	15		↓	↓	
6	15		↓	↓	
7	15		↓	↓	
8	15		↓	↓	
9	15	23:37	15	✓	
10	15		↓	↓	
11	15		↓	↓	
12	15		↓	↓	
13	15		↓	↓	
14	15		↓	↓	
15	15		↓	↓	
16	15		↓	↓	
17	15		↓	↓	
18	15	23:30	15	✓	
19					
20					
21					
22					
23					
24					

S004C019.cnv



KM1906

GRADIENTS 3

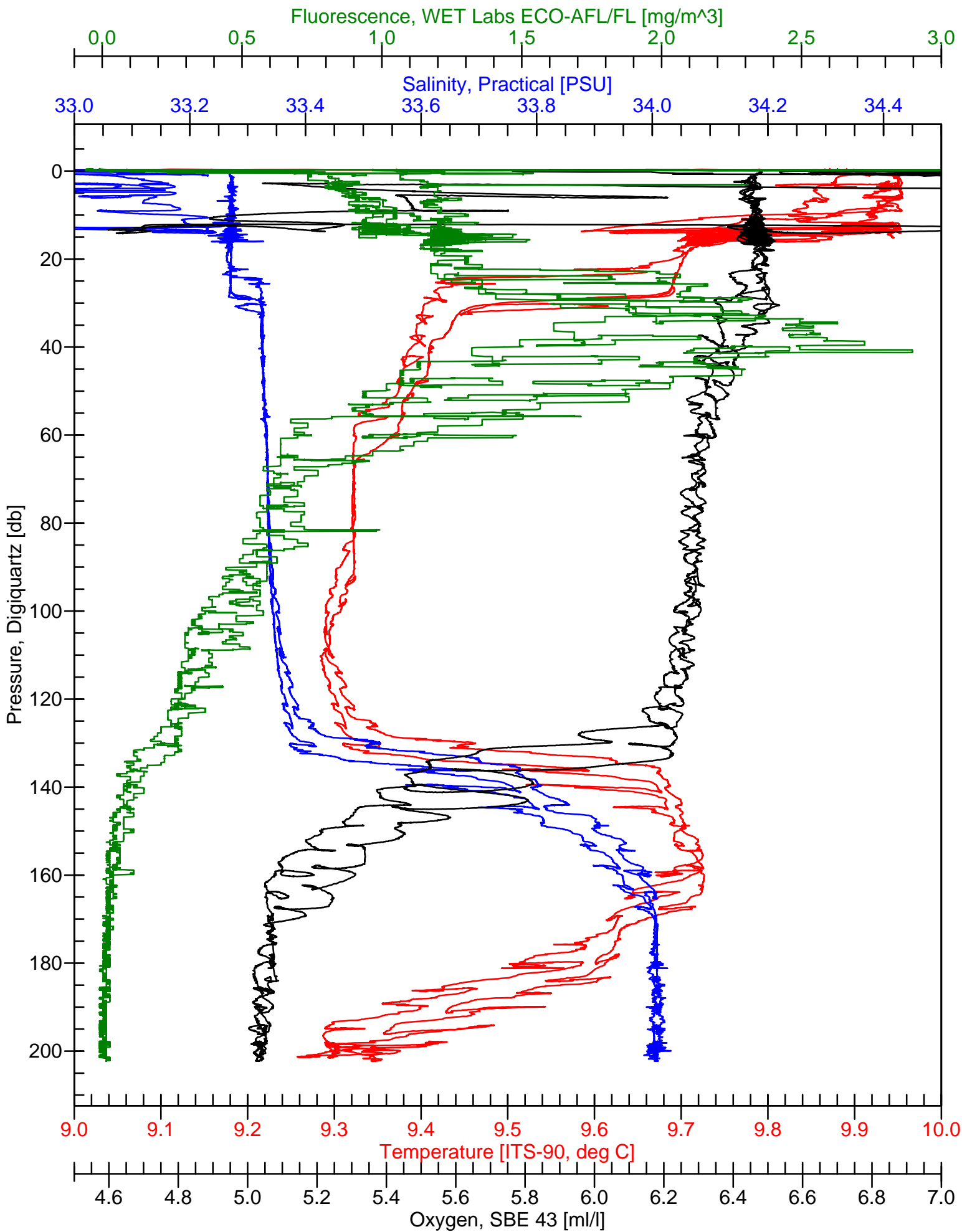
CTD CAST Logsheet

Station: 4	Cast: 21
Bottom (m): 200	Date (UTC): 4/10/19
Time Start Logging UTC: 03:02	03:02
Pressure on deck	Time (UTC)
Start: -0.23	In water: 3:07
End: -0.2894	Out water: 03:29
Latitude N	Longitude W
Start: 41° 36.456'	Start: 157° 54.169'
End: 41° 36.4529'	End: 157° 54.1608'
Max Press: 200	Operators: LJ

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	
<u>CTD:</u> UH OTG <u>ROSETTE:</u> SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	15	03:25:17			
2	15				
3	15				
4	15				
5	15				
6	15				
7	15				
8	15				
9	15				
10	15				
11	15				
12	15				
13	15				
14	15				
15	15				
16	15				
17	15				
18	15				
19					
20					
21					
22					
23					
24					

S004C021.cnv



KM1906

GRADIENTS 3

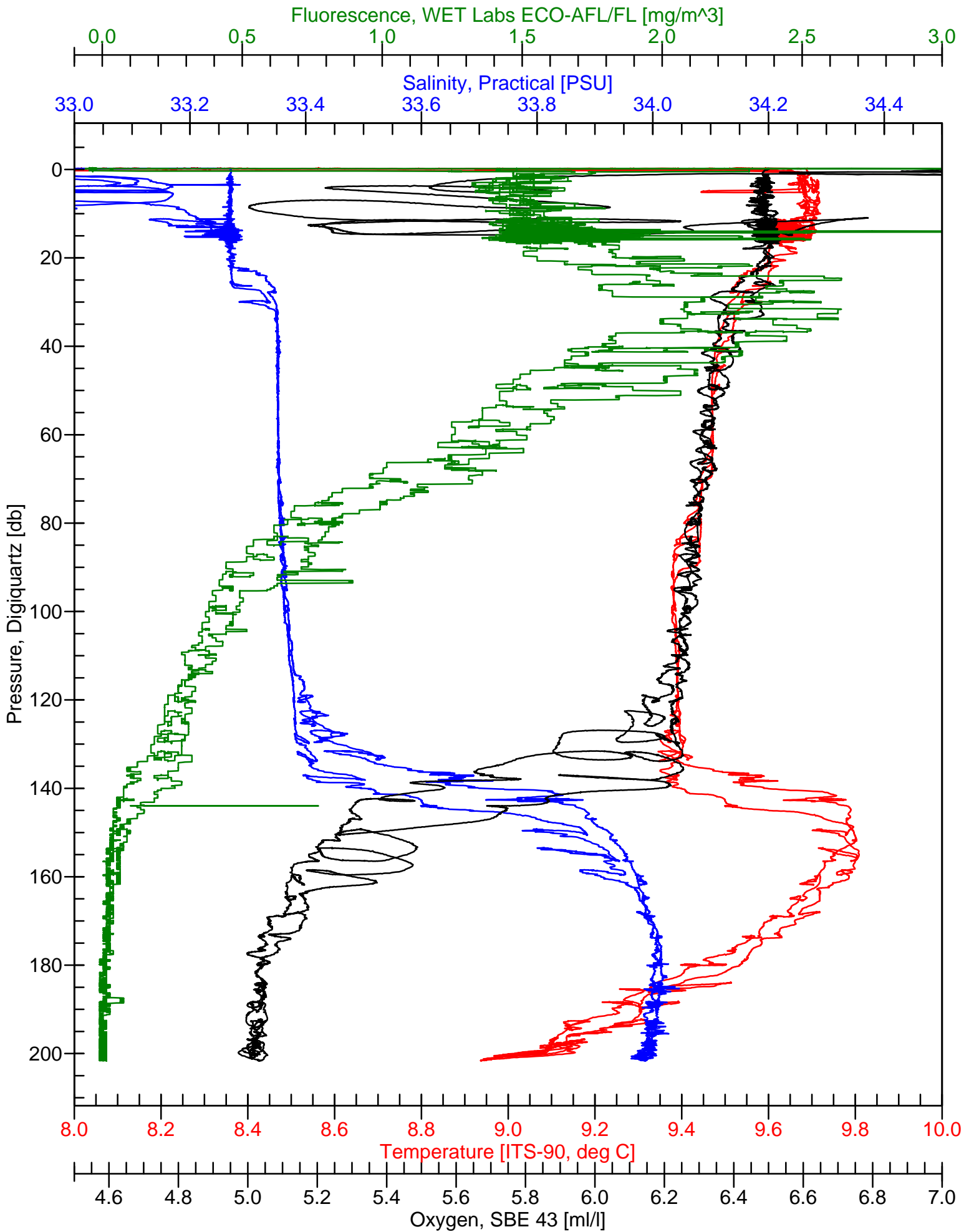
CTD CAST Logsheet

Station: 4	Cast: 23
Bottom (m): 5371	Date (UTC): 1/18/19
Time Start Logging UTC: 06:57	07:33:38
Pressure on deck	Time (UTC)
Start: -0.1	In water: 06:59:45
End: -0.2	Out water: 07:21:35
Latitude N	Longitude W
Start: 41°38.129'N	Start: 157°54.518'W
End: 41°38.150'N	End: 157°54.510'W
Max Press: 20db	Operators: RT

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	DCME 34/db
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1					
2					
3					
4					
5					
6					
7					
8					
9	15	07:19:58	15db	✓	Closed in case of misfire
10	15	07:20:01	↓	✓	
11	15	07:20:20		✓	
12	15	07:20:45		✓	
13	15	07:20:56		✓	
14	15	07:21:12		✓	
15	15	07:21:21		✓	
16	15	07:21:31		✓	
17	15	07:21:43		✓	
18	15	07:21:55		✓	
19	15	07:22:09		↓	✓
20					
21					
22					
23					
24					

S004C023.cnv



SCOPE-Gradients 3 (KM1906)

Diel 12

Station # 4
 Cast # 23
 Operator(s): RT

Date: 4/18/19 (UTC)
 Time: 06:57 (UTC)
 Time: 20:57 local

Coordinates: °N °W

Rosette Position	Desired Depth	Armbrust	Ingall core	Lindell	Juranek O2			
1	tbd							
2	tbd							
3	tbd							
4	tbd							
5	tbd							
6	tbd							
7	tbd							
8	tbd							
9	tbd							
10	15				1			
11	15			1				
12	15		7					
13	15	10						
14	15	10						
15	15	10						
16	15		10					
17	15		10					
18	15		10					
19	tbd							
20	tbd							
21	tbd							
22	tbd							
23	tbd							
24	tbd							

Notes:

KM1906

GRADIENTS 3

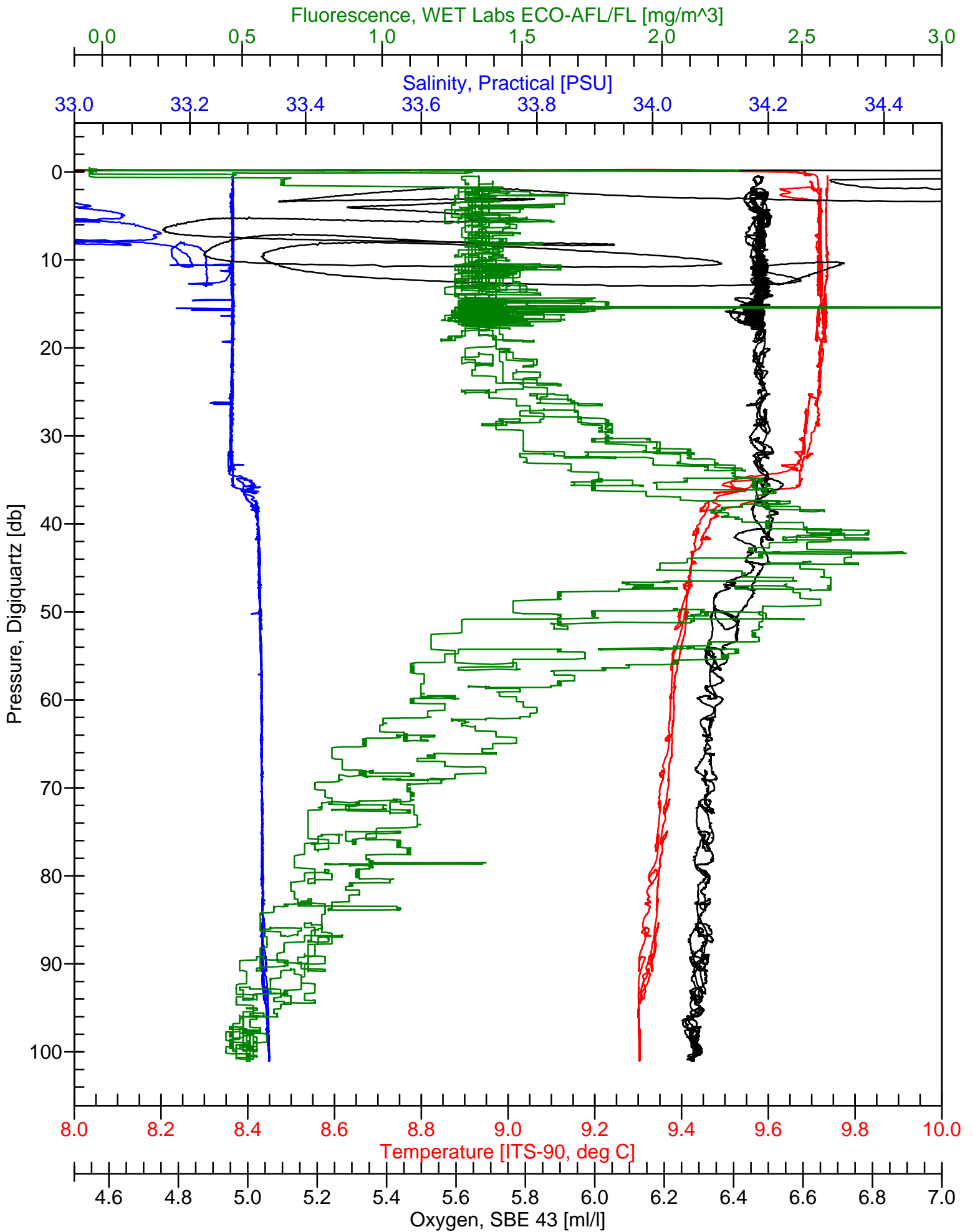
CTD CAST Logsheet

Station: 4	Cast: 25
Bottom (m): 100	Date (UTC): 10 Apr 19
Time Start Logging UTC: 11:01	
Pressure on deck	Time (UTC)
Start: -0.02	In water: 11:06:34
End: -0.041	Out water: 11:26:36
Latitude N	Longitude W
Start: 41° 35.926	Start: 157° 55.391
End: 41° 35.941	End: 157° 55.399
Max Press: 100	Operators: RW

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	User input bottle fine 100m CAST SINCE turn around will be long. 45m chl max / 40m MLD
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	/				
2	/				
3	/				
4	/				
5	/				
6	/				
7	/				
8	/				
9	/				
10	15	11:21:07	15.1	✓	
11	15		15.6	✓	
12	15		15.4	✓	
13	15		15.2	✓	
14	15		14.8	✓	
15	15		17.2	✓	
16	15		16.2	✓	
17	15		15.9	✓	
18	15	11:23:10	15.6	✓	
19	/				
20	/				
21	/				
22	/				
23	/				
24	/				

S004C025.cnv



KM1906

GRADIENTS 3

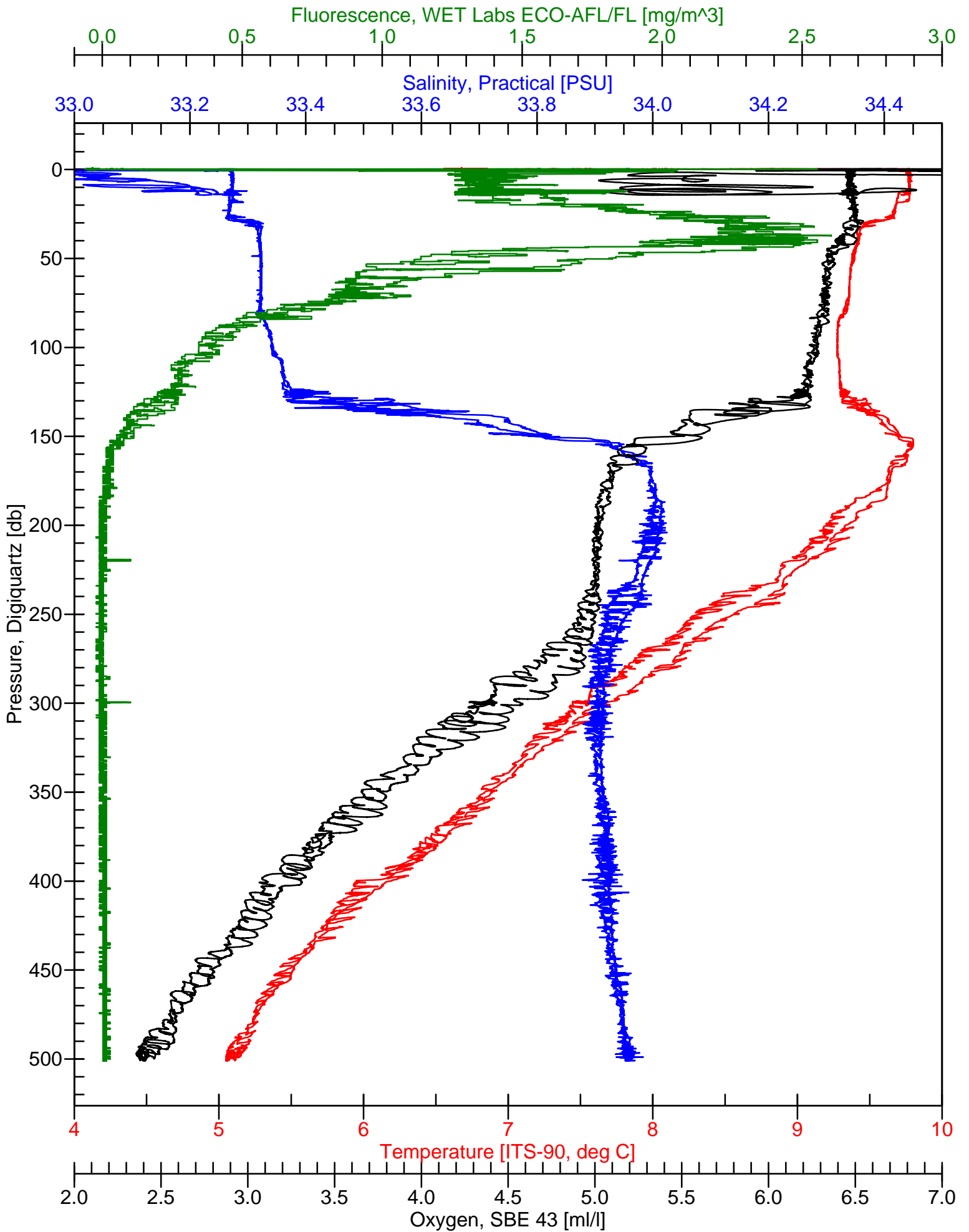
CTD CAST Logsheets

Station: 4	Cast: 27
Bottom (m):	Date (UTC): 4.18.19
Time Start Logging UTC: 12:21:36	
Pressure on deck	Time (UTC)
Start: -0.06	In water: 12:47:37
End: -0.1284	Out water: 13:35
Latitude N	Longitude W
Start: 41° 35.999	Start: 157° 55.243
End: 41° 36.1359	End: 157° 54.9216
Max Press: 501	Operators: AW

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	15 min late due to Robota = "Type 1 delay"
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	500	13:06:29	799	✓	
2	500			✓	
3	500			✓	
4	500			✓	
5	500			✓	
6	500			✓	
7	500	13:07:12		✓	
8	300	13:15:35	300	✓	
9	300			✓	
10	300			✓	
11	300			✓	
12	300			✓	
13	300			✓	
14	300	13:15:50		✓	
15	125	13:23:25	125	✓	
16	125			✓	
17	125			✓	
18	125			✓	
19	70	13:27:12	70	✓	
20	70			✓	
21	70			✓	
22	40	13:30:00	40	✓	
23	40			✓	
24	40			✓	

S004C027.cnv



SCOPE-Gradients 3 (KM1906)

Metabolite Depth Profile

Station # 4
 Cast # 27
 Operator(s): _____

Date: _____ (UTC)
 Time: _____ (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Ingalls Metabs						
1	500	10						
2	500	10						
3	500	10						
4	500	10						
5	500	10						
6	500	10						
7	500	10						
8	300	10						
9	300	10						
10	300	10						
11	300	10						
12	300	10						
13	300	10						
14	300	10						
15	125	10						
16	125	10						
17	125	10						
18	125	10						
19	70	10						
20	70	10						
21	70	10						
22	40	10						
23	40	10						
24	40	10						

Notes:

KM1906

GRADIENTS 3

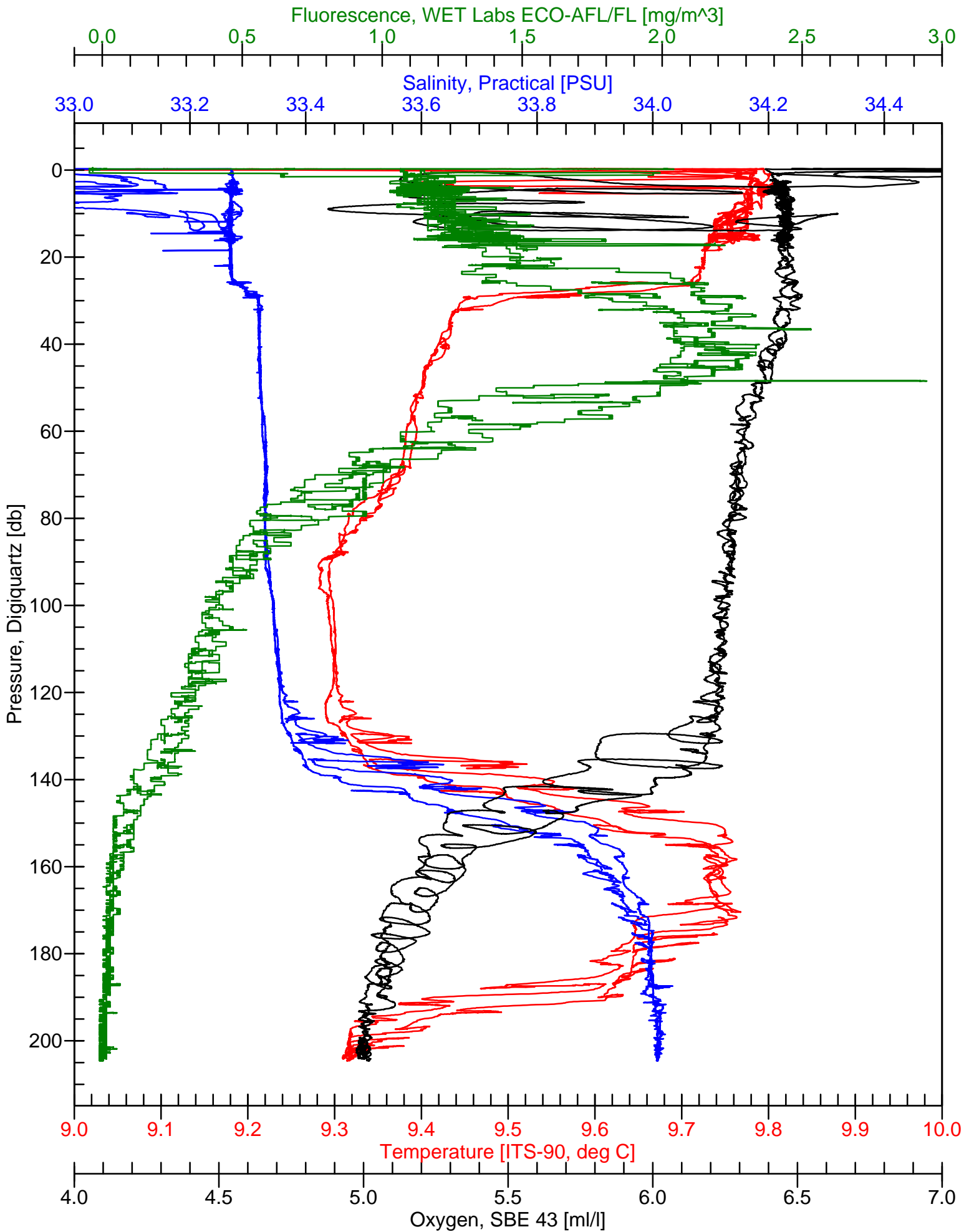
CTD CAST Logsheet

Station: 4	Cast: 28
Bottom (m): 5515	Date (UTC): 4/18/19
Time Start Logging UTC: 14:59	
Pressure on deck Start: -0.2153 End: -0.20	Time (UTC) In water: 15:01 Out water: 15:20
Latitude N Start: 41° 35.5087 End: 41° 35.515	Longitude W Start: 157° 54.7595 End: 157° 54.7681
Max Press: 203	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1					
2					
3					
4					
5					
6					
7					
8					
9	15	15:22:05		✓	(Closed in case of misfire)
10	15			✓	
11	15			✓	
12	15			✓	
13	15			✓	
14	15			✓	
15	15			✓	
16	15			✓	
17	15			✓	
18	15			✓	
19	5	15:25:00		✓	
20	5			✓	
21	5			✓	
22	5			✓	
23	5			✓	
24	5			✓	

S004C028.cnv



SCOPE-Gradients 3 (KM1906)

Diel 14

Station # 4
 Cast # 28
 Operator(s): _____

Date: _____ (UTC)
 Time: _____ (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Armbrust	Ingall core	Lindell	Juranek O2	Zehr		
1	tbd							
2	tbd							
3	tbd							
4	tbd							
5	tbd							
6	tbd							
7	tbd							
8	tbd							
9	tbd							
10	15				1			
11	15			1				
12	15		7					
13	15	10						
14	15	10						
15	15	10						
16	15		10					
17	15		10					
18	15		10					
19	5					10		
20	5					10		
21	5					10		
22	5					10		
23	5					10		
24	5					10		

Notes:

KM1906

GRADIENTS 3

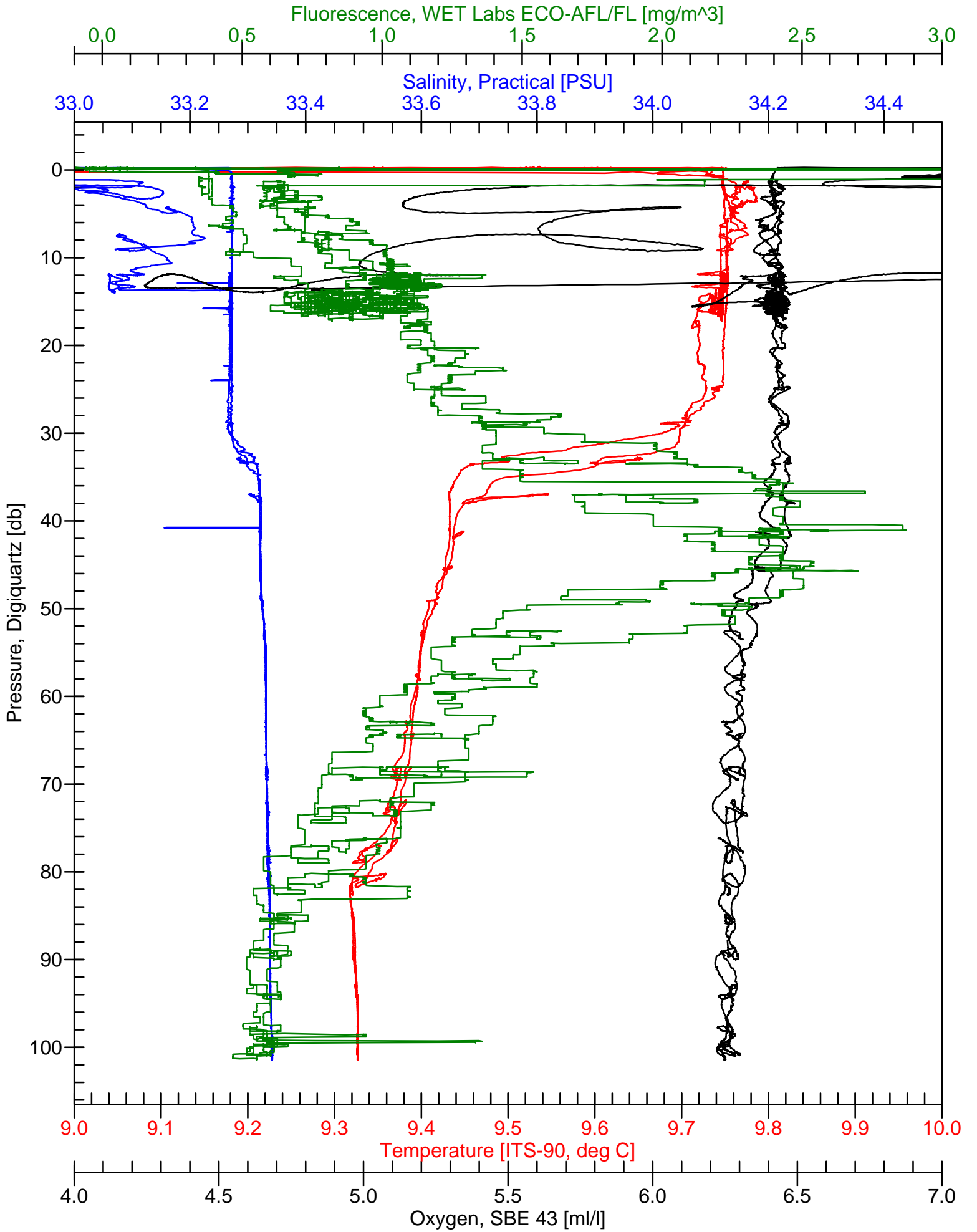
CTD CAST Logsheet

Station: 4	Cast: 30
Bottom (m):	Date (UTC): 4/18/19
Time Start Logging UTC: 18:03	
Pressure on deck	Time (UTC)
Start: -0.2147	In water: 18:04
End: -0.1154	Out water: 18:22
Latitude N	Longitude W
Start: 41° 36.270'	Start: 157° 53.210'
End: 41° 36.2567'	End: 157° 53.2114'
Max Press: 102	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	
<u>CTD:</u> UH OTG <u>ROSETTE:</u> SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1					
2					
3					
4					
5					
6					
7					
8					
9	15	18:14:10	15	✓	
10	15	↓	↓	✓	
11	15	↓	↓	✓	
12	15	↓	↓	✓	
13	15	↓	↓	✓	
14	15	↓	↓	✓	
15	15	↓	↓	✓	
16	15	↓	↓	✓	
17	15	↓	↓	✓	
18	15	↓	↓	✓	
19	15	18:15:15	↓	✓	
20					
21					
22					
23					
24					

S004C030.cnv



SCOPE-Gradients 3 (KM1906)

Diel 15

Station # 4
 Cast # 30
 Operator(s): _____

Date: _____ (UTC)
 Time: _____ (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Armbrust	Ingall core	Lindell	Juranek O2			
1	tbd							
2	tbd							
3	tbd							
4	tbd							
5	tbd							
6	tbd							
7	tbd							
8	tbd							
9	tbd							
10	15				1			
11	15			1				
12	15		7					
13	15	10						
14	15	10						
15	15	10						
16	15		10					
17	15		10					
18	15		10					
19	tbd							
20	tbd							
21	tbd							
22	tbd							
23	tbd							
24	tbd							

Notes:

KM1906

GRADIENTS 3

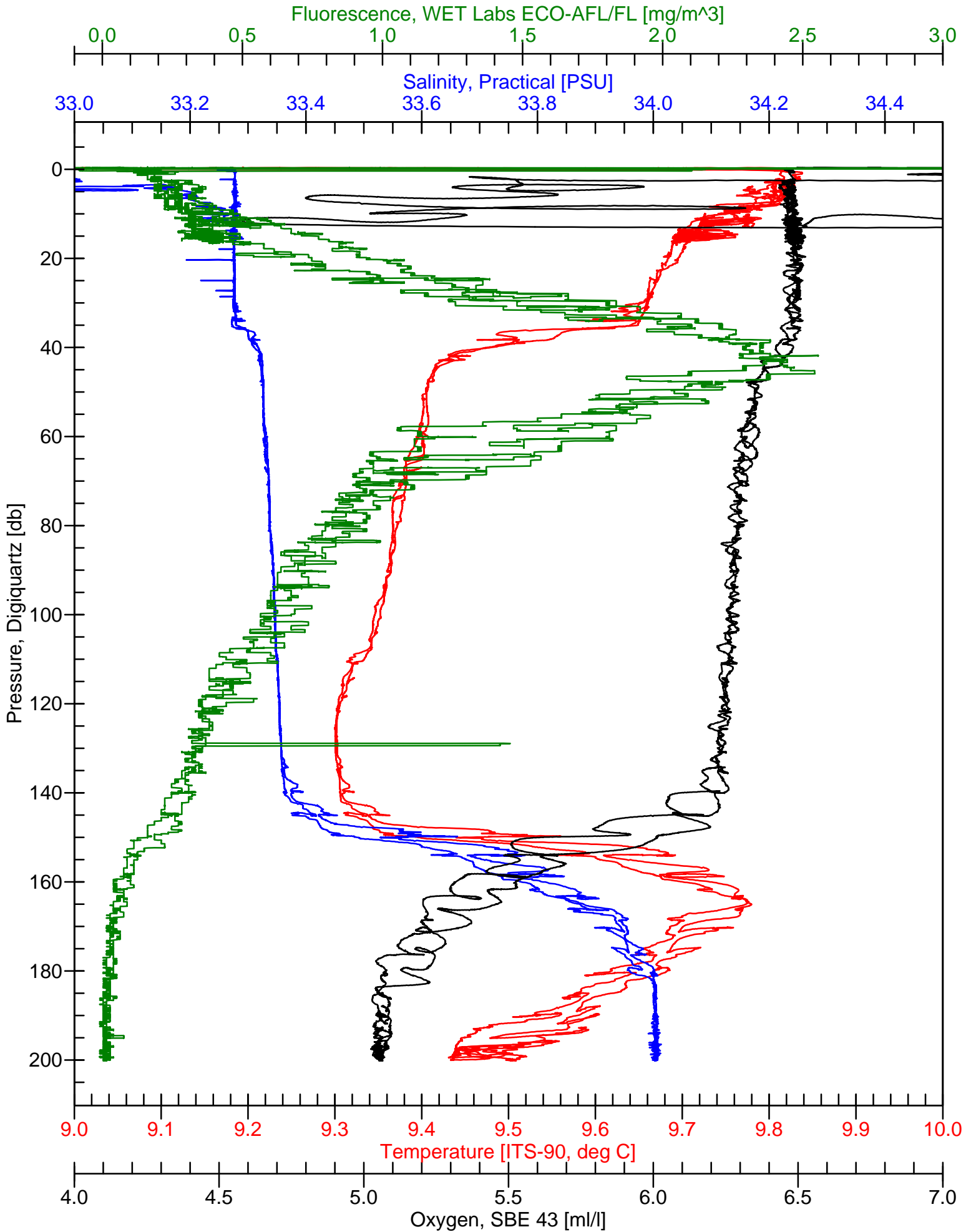
CTD CAST Logsheets

Station: 4	Cast: 31
Bottom (m):	Date (UTC): 4/18/19
Time Start Logging UTC: 21:42	
Pressure on deck Start: -0.2834 End: -0.165	Time (UTC) In water: 21:44 Out water: 22:13
Latitude N Start: 41° 35.4240 End: 41° 35.4801	Longitude W Start: 157° 52.699 End: 157° 52.7001
Max Press: 200	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	DIFL 16 (Last one)
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	15	22:06	15	✓	
2	15		1	✓	
3	15			✓	
4	15			✓	
5	15			✓	
6	15			✓	
7	15			✓	
8	15			✓	
9	15			✓	
10	15			✓	
11	15			✓	
12	15			✓	
13	15			✓	
14	15			✓	
15	15			✓	
16	15			✓	
17	15			✓	
18	15			✓	
19	15			✓	
20	15			✓	
21	15			✓	
22	15			✓	
23	15			✓	
24	15	22:09		✓	

S004C031.cnv



SCOPE-Gradients 3 (KM1906)

Diel 15

Station # 4
 Cast # 31
 Operator(s): _____

Date: _____ (UTC)
 Time: _____ (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Armbrust	Ingall core	Lindell	Juranek O2			
1	tbd							
2	tbd							
3	tbd							
4	tbd							
5	tbd							
6	tbd							
7	tbd							
8	tbd							
9	tbd							
10	15				1			
11	15			1				
12	15		7					
13	15	10						
14	15	10						
15	15	10						
16	15		10					
17	15		10					
18	15		10					
19	15							
20	15							
21	15							
22	15	10						
23	15	10						
24	15	10						

Notes:

KM1906

GRADIENTS 3

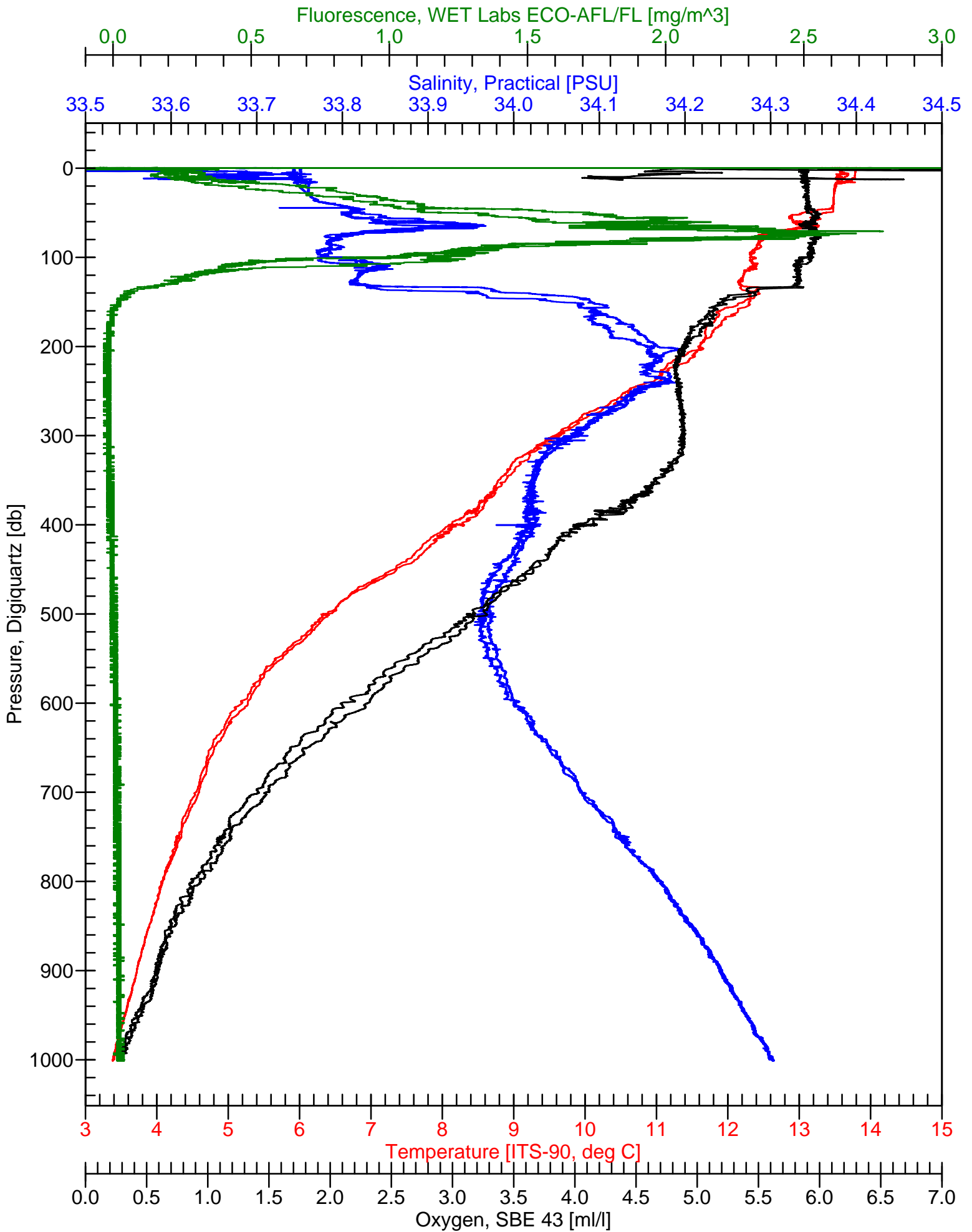
CTD CAST Logsheet

Station: 5	Cast: 1
Bottom (m): 5728	Date (UTC):
Time Start Logging UTC: 00:15	
Pressure on deck	Time (UTC)
Start: -0.3277	In water: 00:18
End: -0.2795	Out water: 01:58
Latitude N	Longitude W
Start: 36°59.9805'	Start: 158°00.0394'
End: 36°59.9805'	End: 157°59.9771'
Max Press: 1003	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	Biogeochem Cast. Cast paused at 358m due to winch squeaking sound.
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	1000	01:16:00	1000	✓	
2	750	01:21:48	749	✓	
3	500	01:27:29	500	✓	
4	400	01:30:40	400	✓	
5	300	01:33:50	301	✓	
6	250	01:35:45	251	✓	
7	200	01:38:40	200	✓	
8	175	01:40:35	175	✓	
9	125	01:42:50	125	✓	
10	115	01:43:50	115	✓	
11	110	01:44:25	110	✓	
12	105	01:45:20	105	✓	
13	100	01:46:15	100	✓	
14	95	01:46:52	95	✓	
15	90	01:47:25	90	✓	
16	85	01:47:59	85	✓	
17	80	01:48:45	80	✓	
18	75	01:49:24	75	✓	
19	70	01:49:55	70	✓	
20	65	01:50:45	65	✓	
21	60	01:51:40	60	✓	
22	55	01:52:21	55	✓	
23	45	01:53:20	45	✓	
24	15	01:55:02	15	✓	

S005C001.cnv



SCOPE-Gradients 3 (KM1906)

CTD High Resolution/Biogeochemical

Station # 5
 Cast # 1
 Operator(s): _____

Date: 4/19/19 (UTC)
 Time: _____ (UTC)
 Time: _____ local

Coordinates: _____ °N _____ °W

Rosette Position	Desired Depth	N ₂ O/CH ₄	DO	O ₂ Isos	NUTS	LLP/LLN	DOP/DON	Chl	PATP	PC/PN	PPO4	Metals	Hg
1	1000		1		1		1					1	1
2	750		1		2		2					1	1
3	500				3		3					1	1
4	400	1	1		4		4					1	1
5	300	1			5		5					1	
6	250		1		6		6					1	
7	200	1	1	1	7		7					1	
8	175				8		8					1	
9	125	1			9	9	9						
10	115	1	1		10	10	10	1	1	4(7)	1	1	
11	110				11	11	11		2		2	1	
12	105	1			12	12	12		3		3	1	
13	100	1		1	13	13	13	2	4	4(8)	4	1	
14	95	1	1		14	14	14		5		5	1	
15	90	1		1	15	15	15		6		6	1	
16	85	1			16	16	16		7		7	1	
17	80	1	1		17	17	17	3,4	8	4(9)	8	1	
18	75			1	18	18	18		9		9	1	
19	70	1			19	19	19		10		10	1	
20	65			1	20	20	20	5	11		11	1	
21	60	1	1		21	21	21	6	12		12	1	
22	55	1		1	22	22	22	7	13	4(10)	13		
23	45	1			23	23	23						
24	15	1	1	1	24	24	24	8		4(11)			

Notes:

KM1906

GRADIENTS 3

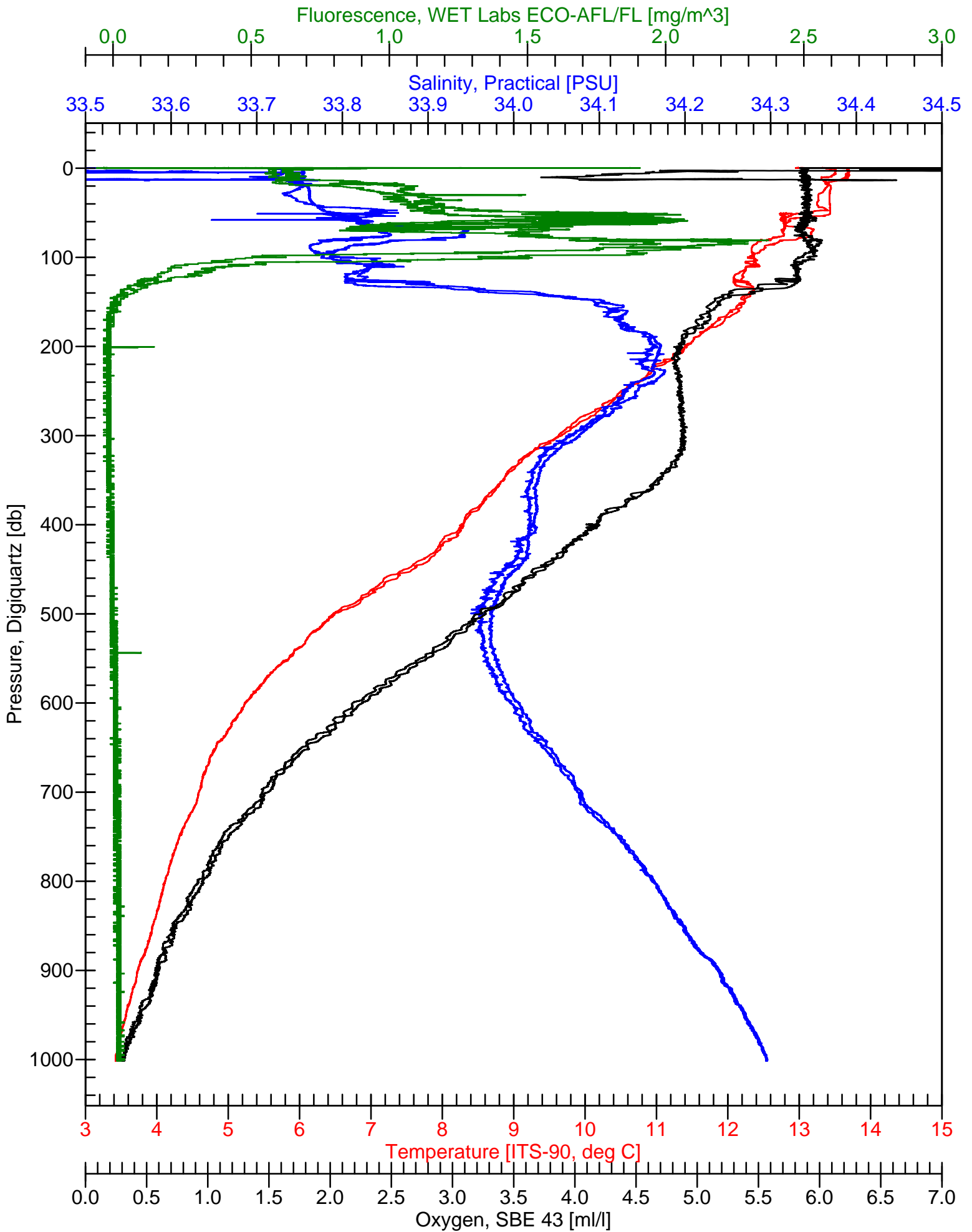
CTD CAST Logsheets

Station: 5	Cast: 3
Bottom (m): 5731	Date (UTC): 4/20/19
Time Start Logging UTC: 04:23	
Pressure on deck	Time (UTC)
Start: -03059	In water: 04:25
End: -0.3293	Out water: 05:43
Latitude N	Longitude W
Start: 36°59.9993	Start: 158°00.0623'
End: 36°59.9938	End: 157°59.9240
Max Press: 1000	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	Level wind problem on recovery - stopped at 50m to 15m for ~20 minutes on ascent.
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	1000	4:54:15	1000	✓	
2	↓	↓	↓	✓	
3	↓	↓	↓	✓	
4	↓	↓	↓	✓	
5	↓	↓	↓	✓	
6	↓	↓	↓	✓	
7	↓	4:55:05	↓	✓	
8	400	5:07:40	400	✓	
9	↓	↓	↓	✓	
10	↓	↓	↓	✓	
11	↓	↓	↓	✓	
12	↓	↓	↓	✓	
13	↓	↓	↓	✓	
14	↓	05:07:50	↓	✓	
15	200	05:12:30	200	✓	
16	↓	↓	↓	✓	
17	↓	↓	↓	✓	
18	↓	05:13:05	↓	✓	
19	125	05:15:30	125	✓	
20	↓	↓	↓	✓	
21	↓	05:15:50	↓	✓	
22	80	05:17:45	80	✓	
23	↓	↓	↓	✓	
24	↓	05:18:10	↓	✓	

S005C003.cnv



SCOPE-Gradients 3 (KM1906)

Metabolite Depth Profile

Station # 5
 Cast # 3
 Operator(s): _____

Date: _____ (UTC)
 Time: _____ (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Ingalls Metabs						
1	1000	10						
2	1000	10						
3	1000	10						
4	1000	10						
5	1000	10						
6	1000	10						
7	1000	10						
8	400	10						
9	400	10						
10	400	10						
11	400	10						
12	400	10						
13	400	10						
14	400	10						
15	200	10						
16	200	10						
17	200	10						
18	200	10						
19	125	10						
20	125	10						
21	125	10						
22	80	10						
23	80	10						
24	80	10						

Notes:

KM1906

GRADIENTS 3

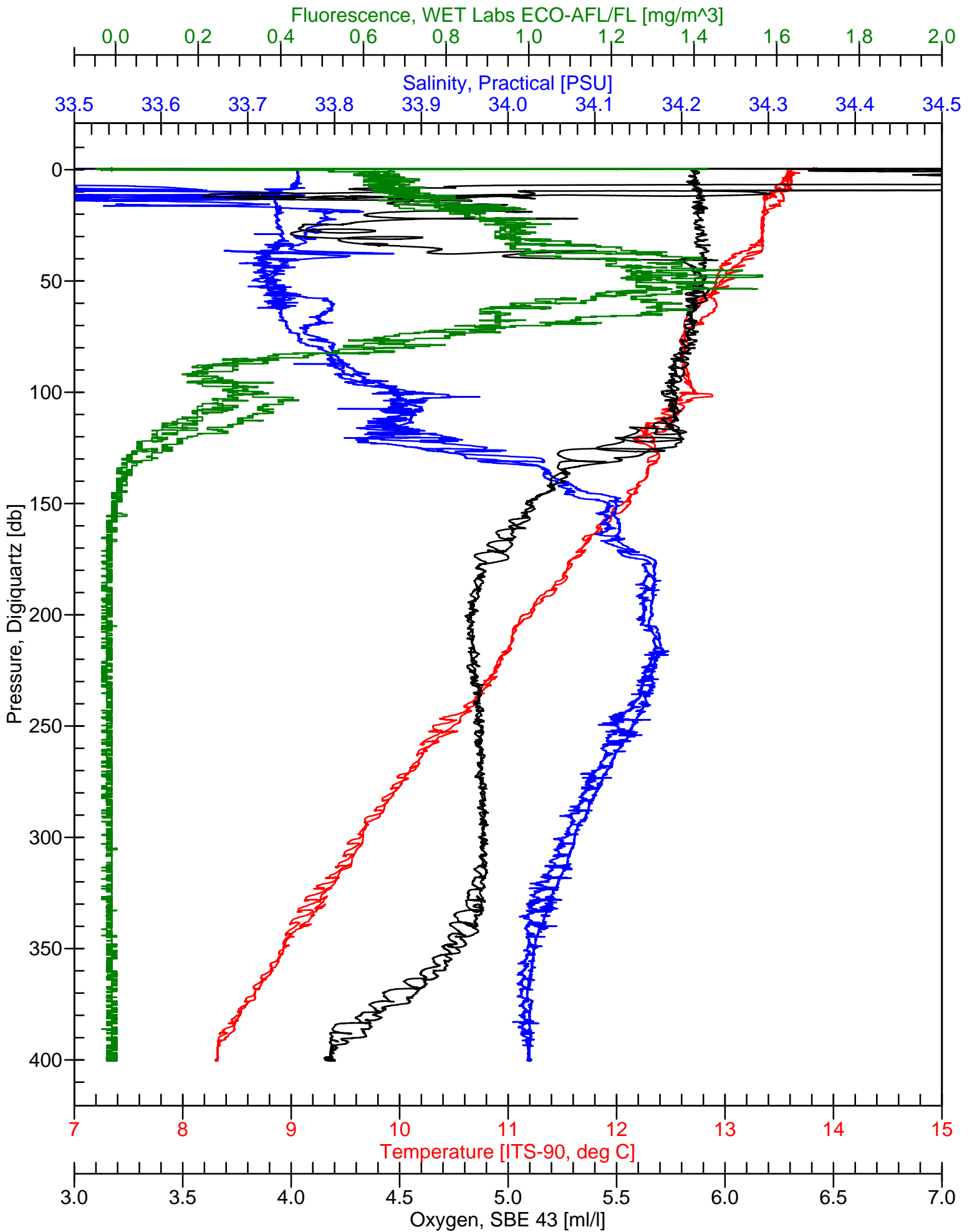
CTD CAST Logsheet

Station: 5	Cast: 4
Bottom (m): 400	Date (UTC): 4.20.19
Time Start Logging UTC: 10:15:56	
Pressure on deck	Time (UTC) 10:59:48
Start: -0.3017	In water: 10:22:24
End: -0.4001	Out water: 11:07
Latitude N	Longitude W
Start: 37° 0.002	Start: 158.0.019
End: 36° 59.999	End: 158.0.007
Max Press: 395.1	Operators: AW

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	No bottles fired; trace only.
CTD: UH OTG ROSETTE: SCOPE	10 oxygen sensor highly variable in upper 40m of descent likely air entrainment d/c @ 50m

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

S005C004.cnv



KM1906

GRADIENTS 3

CTD CAST Logsheets

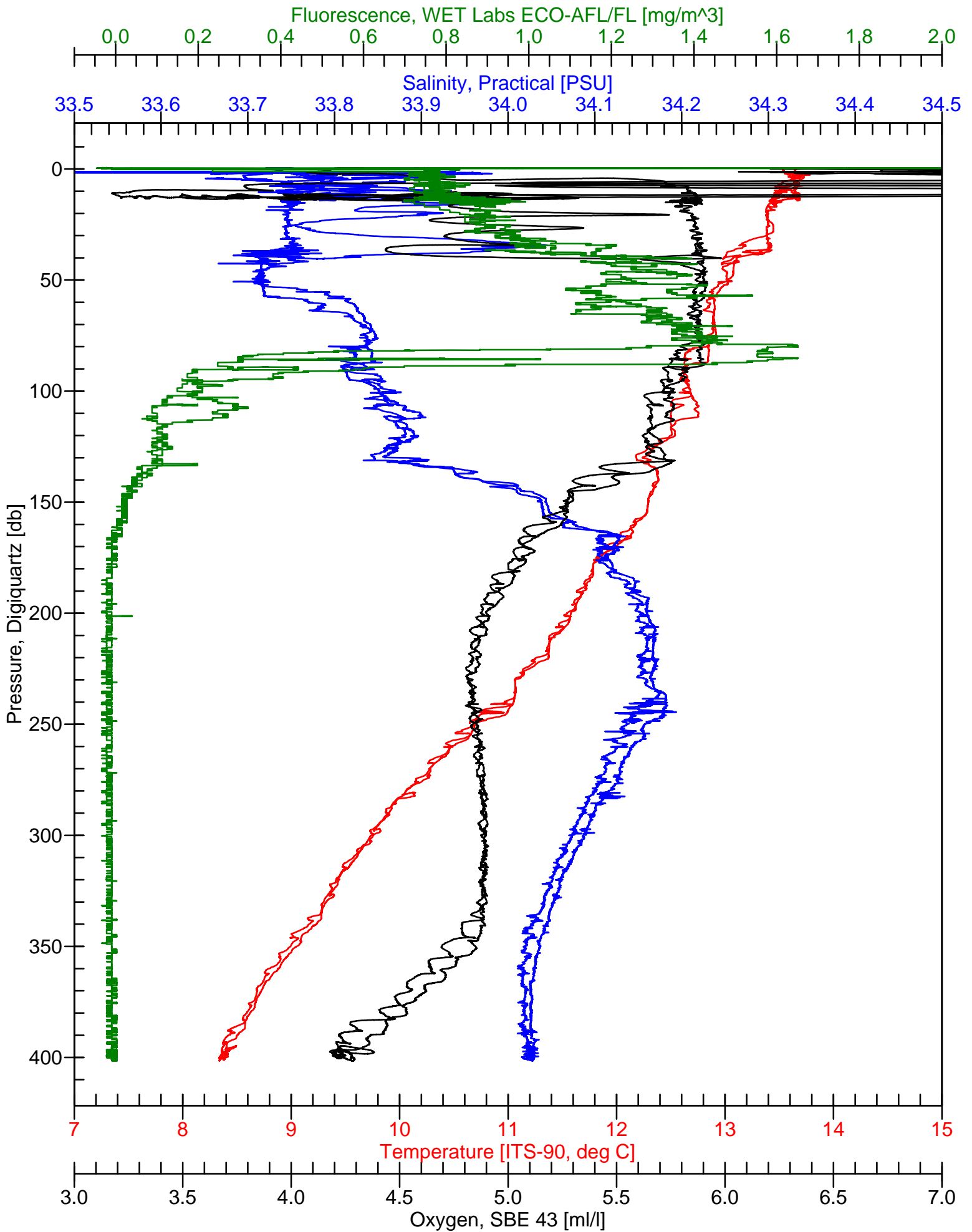
Station: 5	Cast: 6
Bottom (m): 400	Date (UTC): 04/20/19
Time Start Logging UTC: 13:05	
Pressure on deck Start: -0.4156 End:	Time (UTC) In water: 13:06 Out water: 13:36
Latitude N Start: 36° 59.9959 End: 36° 59.9824	Longitude W Start: 158° 00.0146 End: 157° 59.9954
Max Press: 400	Operators: TB + RT

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	Fluorometers don't seem to agree very well...?
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

* NO BOTTLES FIRED *
TRACE ONLY *

S005C006.cnv



KM1906

GRADIENTS 3

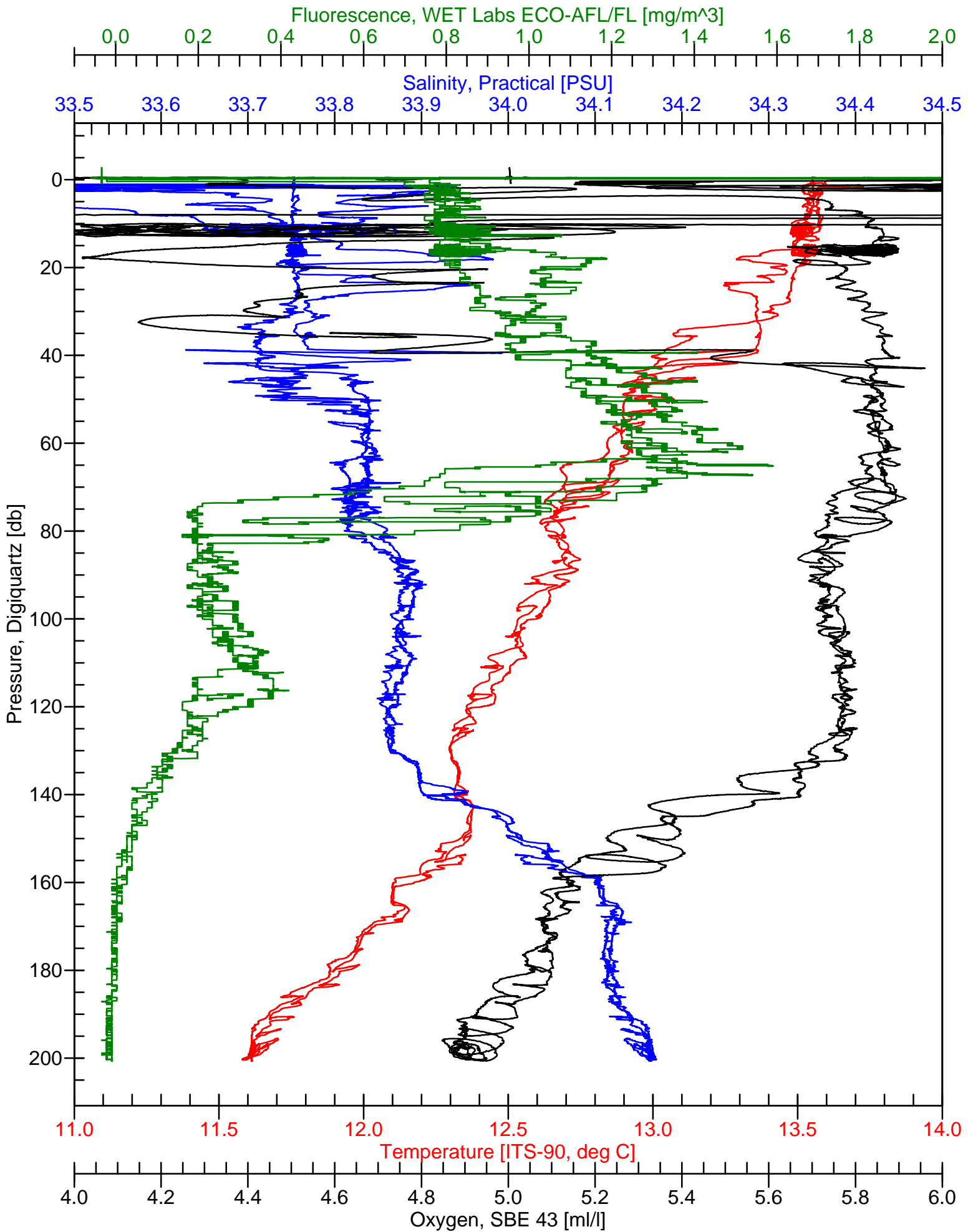
CTD CAST Logsheets

Station: 5	Cast: 7
Bottom (m): 5749	Date (UTC): Apr 20, 2019
Time Start Logging UTC: 15:24	
Pressure on deck	Time (UTC)
Start: -0.25	In water: 15:30:18
End: -0.37	Out water: 15:58:10
Latitude N	Longitude W
Start: 37° 0.204' N	Start: 158° 0.188' W
End: 37° 0.184' N	End: 158° 0.102' W
Max Press: 200	Operators: RT

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	Large disagreement in O ₂ sensors #1 is ~40% less than #2 → Air entrainment ⇒ at surface, imbalance is reversed ✓ agreement deeper than 30m Fluorescence traces are suspicious
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	15	15:50:24	17.1	✓	
2		15:50:47	15.3	✓	
3		15:51:40	15.	✓	
4		15:51:59		✓	
5		15:52:14		✓	
6		15:52:24		✓	
7		15:52:35		✓	
8		15:52:46		✓	
9		15:52:55		✓	
10		15:53:04		✓	
11		15:53:12		✓	
12		15:53:21		✓	
13		15:53:29		✓	
14		15:53:39		✓	
15		15:53:47		✓	
16		15:53:59		✓	
17		15:54:13		✓	
18		15:54:21		✓	
19		15:54:30		✓	
20		15:54:40		✓	
21		15:54:49		✓	
22		15:54:59		✓	
23		15:55:11		✓	
24	✓	15:55:20		✓	

S005C007.cnv



SCOPE-Gradients 3 (KM1906)

Virus and GBT

Station # 5
 Cast # 7
 Operator(s): _____

Date: 4/20/19 (UTC)
 Time: 15:30 (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Lindell Virus	Ingall GBT					
1	15	8						
2	15	8						
3	15	8						
4	15		10					
5	15		10					
6	15		10					
7	15		10					
8	15		10					
9	15		10					
10	15		10					
11	15		10					
12	15		10					
13	15		10					
14	15		10					
15	15		10					
16	15		10					
17	15		10					
18	15		10					
19	15		10					
20	15		10					
21	15		10					
22	15		10					
23	15		10					
24	15		10					

Notes:

KM1906

GRADIENTS 3

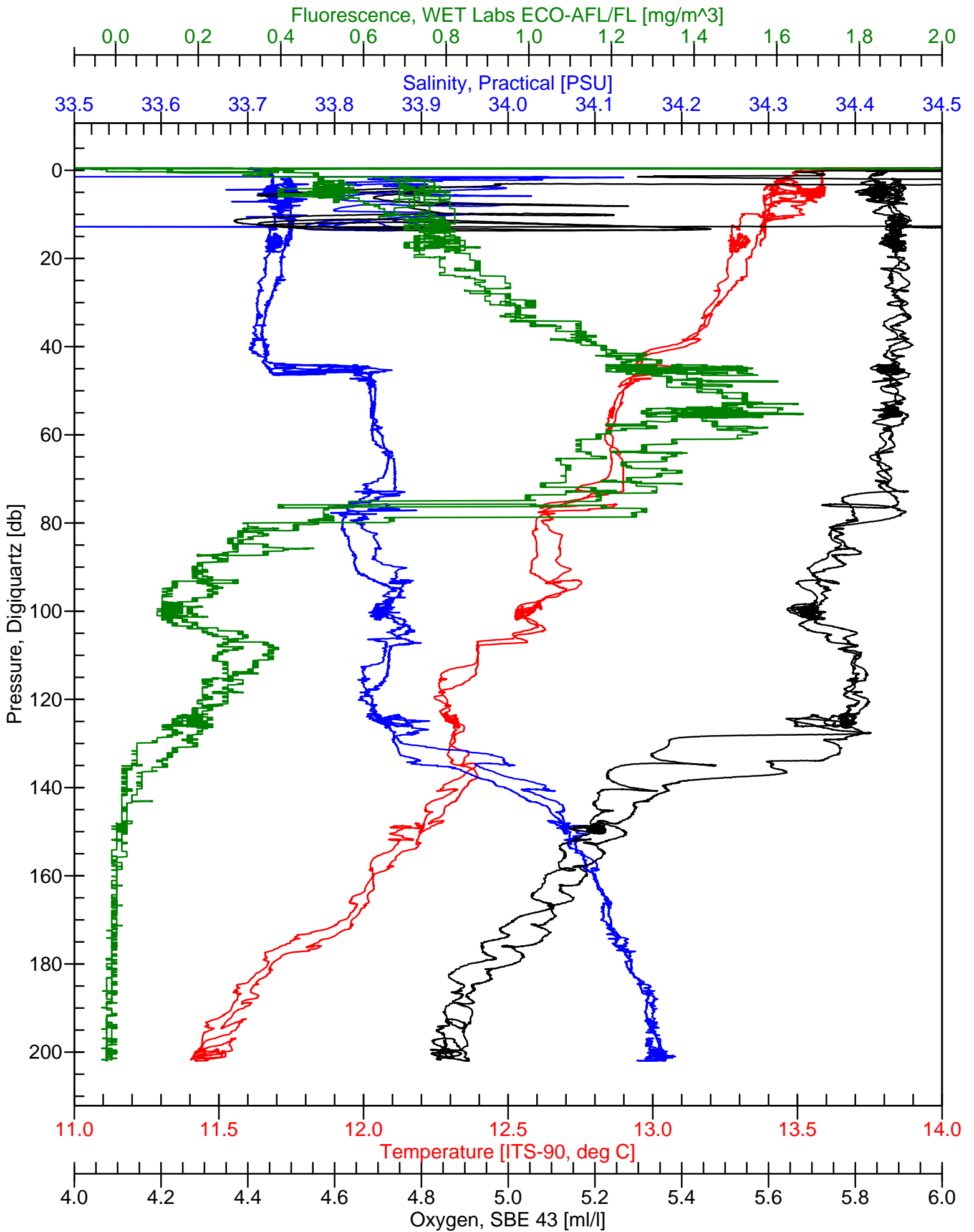
CTD CAST Logsheet

Station: 5	Cast: 8
Bottom (m): 5747	Date (UTC): 4/20/14
Time Start Logging UTC: 17:42	
Pressure on deck	Time (UTC)
Start: -0.3260	In water: 17:44
End: -0.3153	Out water: 18:08
Latitude N	Longitude W
Start: 37° 00.1733'	Start: 158° 00.0302'
End: 37° 00.1675'	End: 158° 00.0101'
Max Press: 200	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	150	17:55:45	150	✓	
2	125	17:56:45	125	✓	
3	125	↓	↓	✓	
4	125	↓	↓	✓	
5	125	↓	↓	✓	
6	125	17:57:30	↓	✓	
7	100	17:58:35	100	✓	
8	100	↓	↓	✓	
9	100	↓	↓	✓	
10	100	17:58:59	↓	✓	
11	55	18:00:45	55	✓	
12	55	↓	↓	✓	
13	55	↓	↓	✓	
14	55	↓	↓	✓	
15	55	18:01:20	↓	✓	
16	45	18:02:40	45	✓	
17	45	↓	↓	✓	
18	45	18:02:55	↓	✓	
19	15	18:04:45	16	✓	
20	15	↓	16	✓	
21	15	↓	16	✓	
22	15	↓	15	✓	
23	15	18:05:59	15	✓	
24	5	18:06:58	5	✓	

S005C008.cnv



SCOPE-Gradients 3 (KM1906)

Molecular Depth Profile

Station # 5
 Cast # 8
 Operator(s): _____

Date: 4/20/19 (UTC)
 Time: ~700 HST (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Armbrust Transcript	Zehr	Annette	Lindell Fuhrmann			
1	150				3			
2	125		10					
3	125		10					
4	125	10						
5	125	10						
6	125			1	3			
7	100			1	3			
8	100				3			
9	100		10					
10	100		10					
11	DCM	10						
12	DCM	10						
13	DCM1			1	3			
14	DCM1		10					
15	DCM1		10					
16	45			1	3			
17	45		10					
18	45		10					
19	15			1	3			
20	15		10					
21	15		10					
22	15	10						
23	15	10						
24	5			1	3			

Notes:

KM1906

GRADIENTS 3

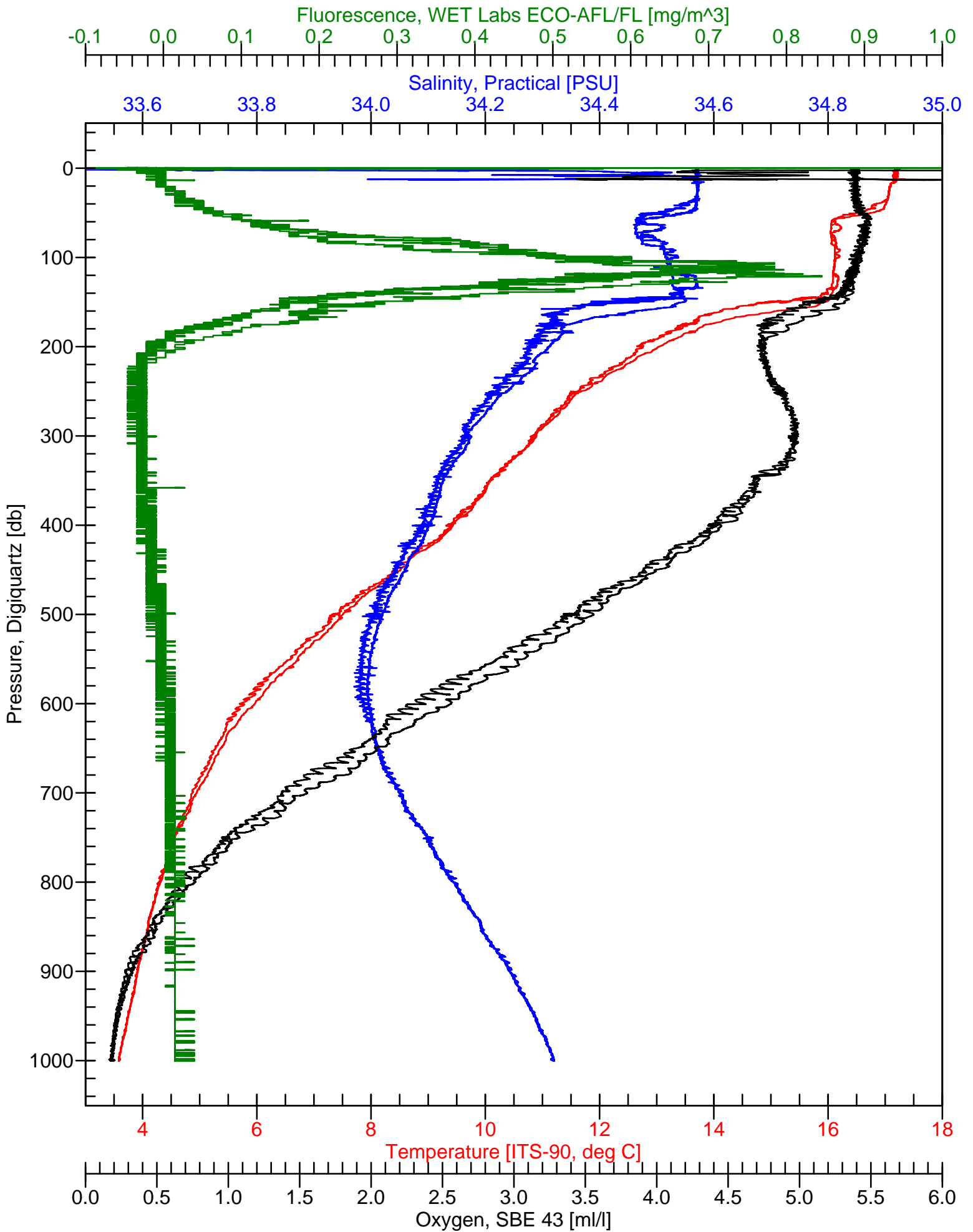
CTD CAST Logsheet

Station: 6	Cast: 1
Bottom (m): 5974	Date (UTC): 4/21/19
Time Start Logging UTC: 19:43	
Pressure on deck Start: -0.39 End: -0.3255	Time (UTC) 21 APR In water: 19:45 Out water: 20:59
Latitude N Start: 32° 55.957 End: 32° 55.959	Longitude W Start: 158° 00.065 End: 158° 00.0916
Max Press: 1000	Operators: AW

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	Transmissometer Cal: Clear Air Path: 4.5617 V Blocked Path: 0.0562 V 50m MLD, 115 DCM
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	1000	20:10:34	999.5	✓	
2	750	20:17:30	749.5	✓	
3	500	20:25:24	500.2	✓	
4	400	20:29:41	400.78	✓	
5	300	20:34:24	300.79	✓	
6	250	20:38:16	250.4	✓	
7	200	20:41:35	198.2	✓	
8	175	20:43:04	175.4	✓	
9	150	20:44:15	150.23	✓	
10	145	20:45:13	144.9	✓	
11	140	20:46:03	140.2	✓	
12	135	20:46:48	135.6	✓	
13	130	20:47:29	129.8	✓	
14	125	20:48:15	125.2	✓	
15	120	20:48:48	120.1	✓	
16	115	20:49:41	114.8	✓	DCM
17	110	20:50:22	110.1	✓	
18	105	20:51:07	105.2	✓	
19	100	20:52:00	99.0	✓	
20	95	20:52:26	95.05	✓	
21	75	20:53:38	74.8	✓	
22	45	20:55:21	45.2	✓	~ MLD
23	25	20:56:36	24.9	✓	
24	5	20:57:58	4.9	✓	

S006C001.cnv



SCOPE-Gradients 3 (KM1906)

CTD High Resolution/Biogeochemical

Station # 6
 Cast # 1
 Operator(s):

Date: 4/21/19 (UTC)
 Time: (UTC)
 Time: local

Coordinates: °N °W

Rosette Position	Desired Depth	N ₂ O/ CH ₄	D O	O ₂ Isos	NUTS	LLP/ LLN	DOP/ DON	Chl	ATP	PC/PN	PPO ₄
1	1000		1		1		1				
2	750		1		2		2				
3	500				3	3	3				
4	400	1	1		4		4				
5	300	1			5		5				
6	250		1		6		6				
7	200	1	1	1	7		7				
8	175				8		8				
9	150	1			9	9	9	1	1		1
10	145	1			10	10	10		2		2
11	140	1			11	11	11		3		3
12	135	1			12	12	12		4		4
13	130	1			13	13	13		5		5
14	125	1			14	14	14	2	6		6
15	120	1			15	15	15		7	4(7)	7
16	115	1	1		16	16	16	3	8		8
17	110	1			17	17	17		9		9
18	105	1			18	18	18		10		10
19	100	1		1	19	19	19	4	11	4(8)	11
20	95	1			20	20	20		12		12
21	75	1		1	21	21	21	5	13	4(9)	13
22	45		1	1	22	22	22	6		4(10)	13
23	25				23	23	23				
24	5	1	1	1	24	24	24	7		4(11)	

Notes:

KM1906

GRADIENTS 3

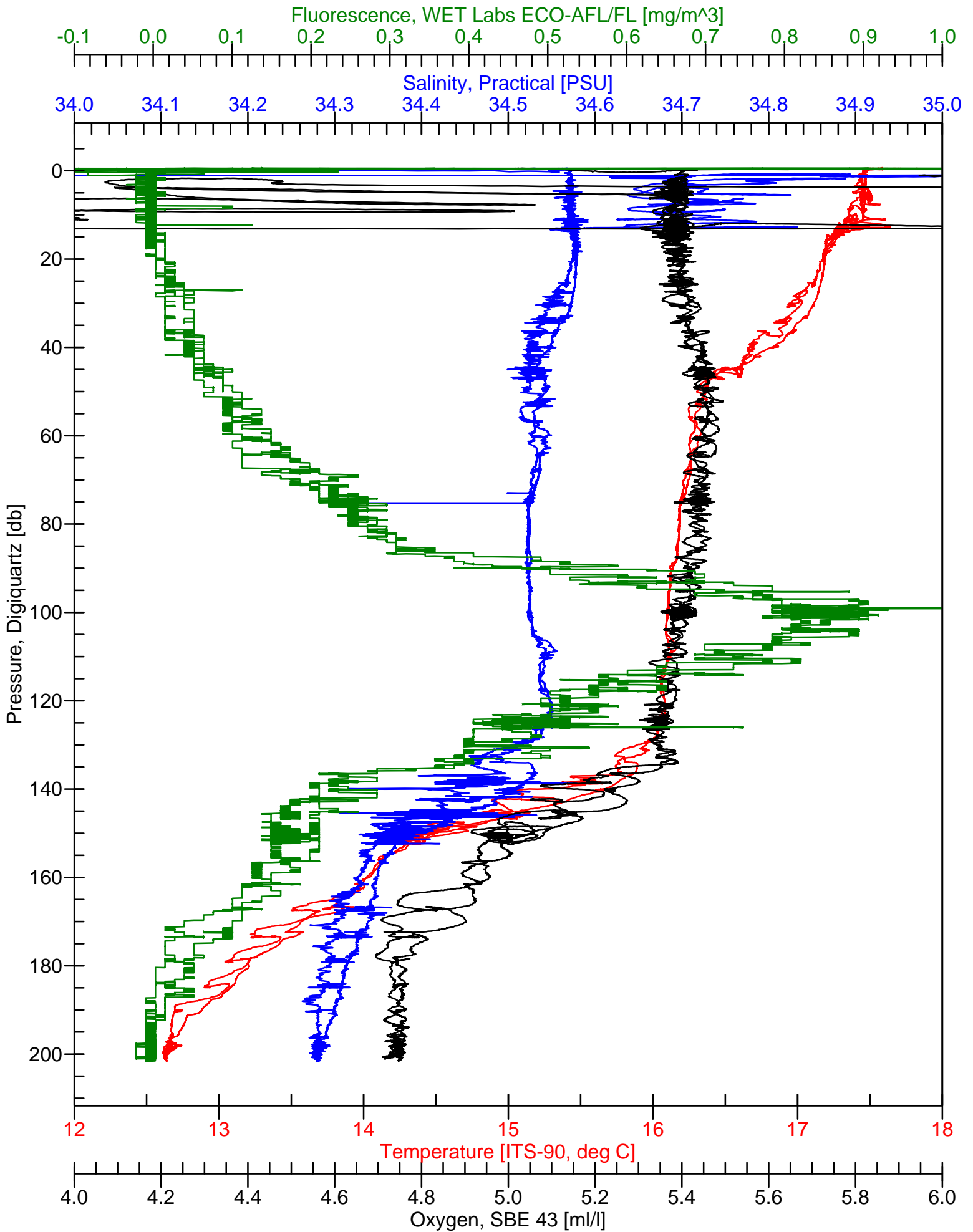
CTD CAST Logsheet

Station: 6	Cast: 3
Bottom (m): 200	Date (UTC): 21 APRIL
Time Start Logging UTC: 23:57:50	
Pressure on deck	Time (UTC)
Start: -0.12	In water: 24:00
End: -0.45	Out water: 00:38
Latitude N	Longitude W
Start: 32° 56.006	Start: 157° 59.995
End: 32° 56.012	End: 158° 0.004
Max Press: 200	Operators: AW

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	100m DCM ~125m
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	150	00:21:34	150.75	✓	
2	125	00:23:27	125.17	✓	
3	DCM	00:25:43	99.3	✓	100m DCM
4	DCM			✓	
5	DCM			✓	
6	DCM			✓	
7	DCM			✓	
8	DCM			✓	
9	DCM			✓	
10	100	00:26:40	100.01	✓	DCM
11	75	00:28:44	74.9	✓	
12	45	00:30:53	45.2	✓	
13	25	00:32	25.90	✓	
14	15	00:34:11	15.5	✓	
15	5	00:35:22	5.8	✓	
16	5			✓	
17	5			✓	
18	5			✓	
19	5			✓	
20	5			✓	
21	5			✓	
22	5	00:36:27	5.6	✓	
23					
24					

S006C003.cnv



SCOPE-Gradients 3 (KM1906)

Grazing cast

Station # 6
 Cast # 3
 Operator(s): AW

Date: 4/21/19 (UTC)
 Time: 14:00 (UTC)
 Time: local

Coordinates: °N °W

Rosette Position	Desired Depth	Zehr Grazing	Lindell					
1	150		3					
2	125		3					
3	DCM	10						
4	DCM	10						
5	DCM	10						
6	DCM	10						
7	DCM	10						
8	DCM	10						
9	DCM	10						
10	100		3					
11	75		3					
12	45		3					
13	25		3					
14	15		3					
15	5	10						
16	5	10						
17	5	10						
18	5	10						
19	5	10						
20	5	10						
21	5	10						
22	5		3					
23								
24								

Notes: DCM = 100M

KM1906

GRADIENTS 3

CTD CAST Logsheet

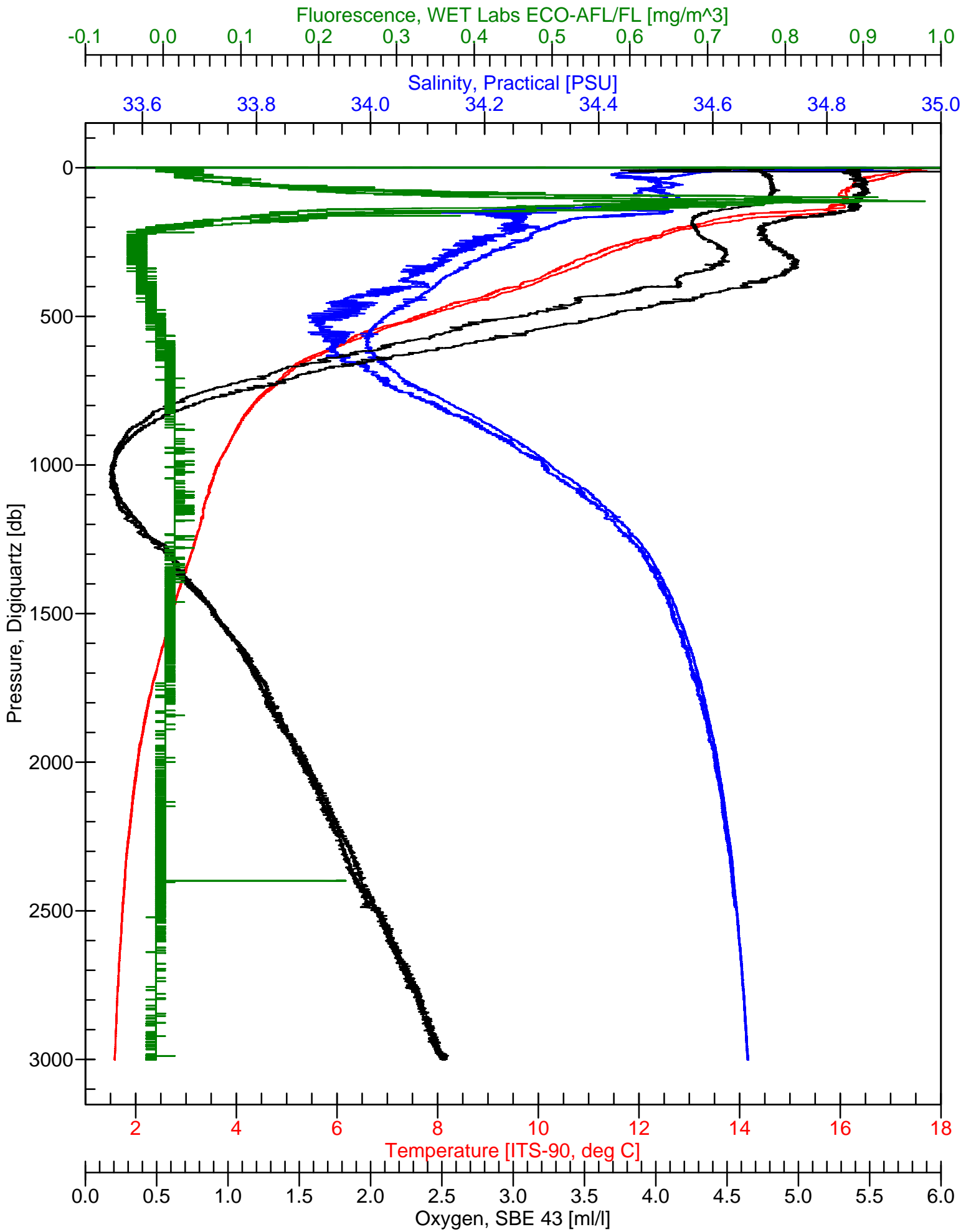
Station: 6	Cast: 4
Bottom (m): 5968	Date (UTC): 22 Apr 2019
Time Start Logging UTC: 02:09:21	
Pressure on deck	Time (UTC)
Start: -0.33	In water: 02:34:01
End: -0.1191	Out water: 05:03:59
Latitude N	Longitude W
Start: 32° 56.021	Start: 158° 0.008
End: 32° 55.7872	End: 157° 59.9112
Max Press: 3000	Operators: AW/TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	Using gradients4-cups-default. xml con no PAR/no seapoint new xmiss
CTD: UH OTG ROSETTE: SCOPE	DO Primary went haywire around O ₂ min zone on upcast - diverged from Secondary by ~20 µmol/kg

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	1000	04:27:30	1000	✓	
2	1000	↓	↓	✓	
3	1000	↓	↓	✓	
4	1000	↓	↓	✓	
5	1000	↓	↓	✓	
6	1000	↓	↓	✓	
7	1000	04:28:30	↓	✓	
8	400	04:42:35	400	✓	
9	400	↓	↓	✓	
10	400	↓	↓	✓	
11	400	↓	↓	✓	
12	400	↓	↓	✓	
13	400	↓	↓	✓	
14	400	04:43:11	↓	✓	
15	200	04:51:09	200	✓	
16	200	↓	↓	✓	
17	200	↓	↓	✓	
18	200	04:51:35	↓	✓	
19	115	04:54:50	115	✓	DCM
20	115	↓	↓	✓	DCM
21	115	04:55:11	↓	✓	DCM
22	75	04:57:25	74	✓	
23	75	↓	↓	✓	
24	75	04:57:50	↓	✓	

↓
Pumps tested after cast.
Primary pump operating at less than 50% flow than secondary
Swapped for new one.
Given evidence in C+T as well as DO, hopeful this solves the problem.

S006C004.cnv



SCOPE-Gradients 3 (KM1906)

Metabolite Depth Profile

Station # 6
 Cast # 4
 Operator(s): _____

Date: _____ (UTC)
 Time: _____ (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Ingalls Metlabs						
1	1000	10						
2	1000	10						
3	1000	10						
4	1000	10						
5	1000	10						
6	1000	10						
7	1000	10						
8	400	10						
9	400	10						
10	400	10						
11	400	10						
12	400	10						
13	400	10						
14	400	10						
15	200	10						
16	200	10						
17	200	10						
18	200	10						
19	115	10						
20	115	10						
21	115	10						
22	75	10						
23	75	10						
24	75	10						

Notes:

KM1906

GRADIENTS 3

CTD CAST Logsheets

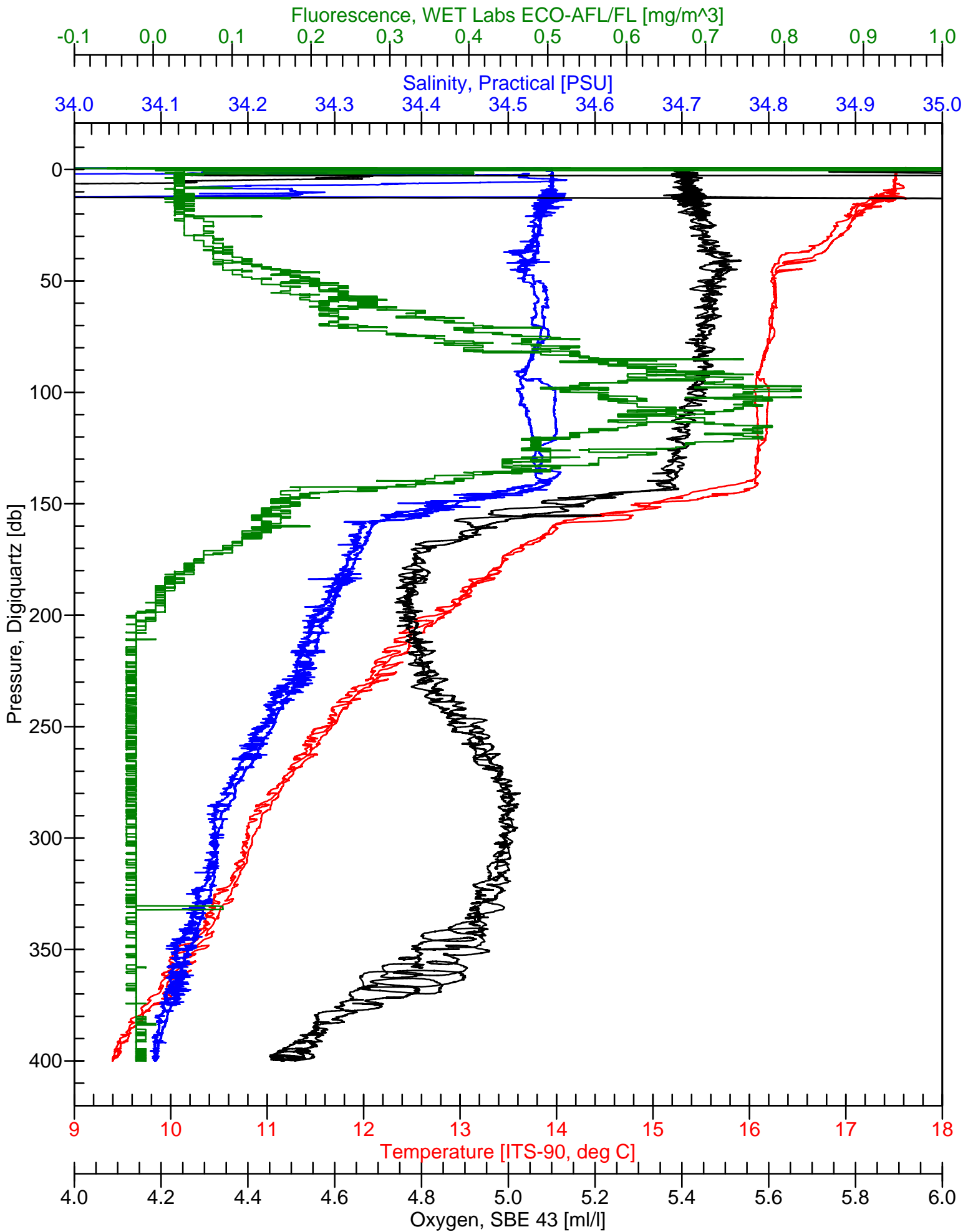
Station: 6	Cast: 5
Bottom (m): 5961	Date (UTC): 7/22/19
Time Start Logging UTC: 10:01	
Pressure on deck Start: -0.4169 End: -0.5365	Time (UTC) In water: 10:03 Out water: 10:41
Latitude N Start: 32° 56.0229' End: 32° 56.0065'	Longitude W Start: 158° 00.0000' End: 157° 59.9881'
Max Press: 402	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	Pump trade seems to have solved the issues from last cast. Difference between sensors ~1 μmol.
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

No BOTTLES

S006C005.cnv



KM1906

GRADIENTS 3

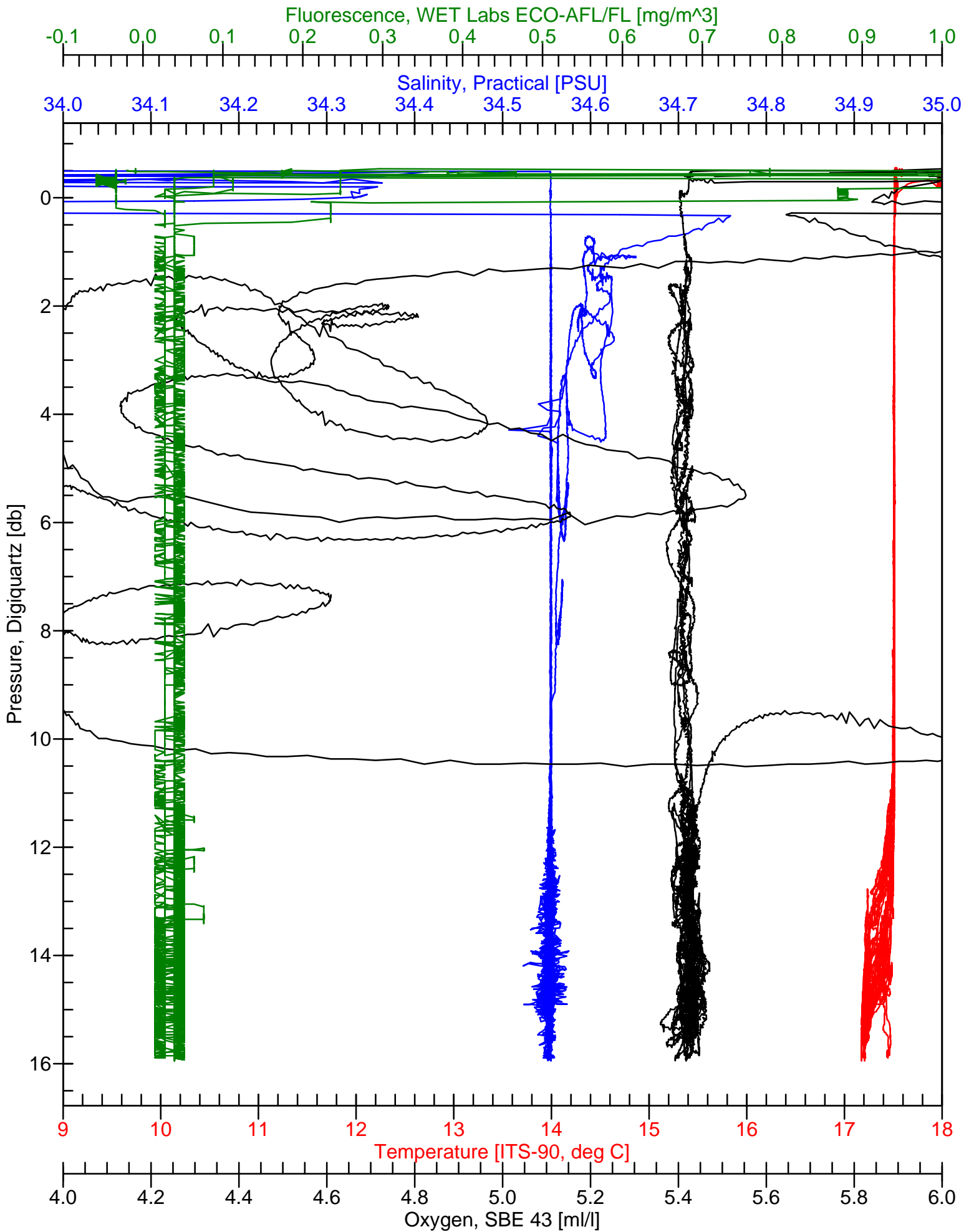
CTD CAST Logsheet

Station: 6	Cast: 6
Bottom (m): 5973	Date (UTC): 4/22/19
Time Start Logging UTC: 13:53:12	
Pressure on deck	Time (UTC)
Start: -0.3279	In water: 13:54
End: -0.5038	Out water: 14:03
Latitude N	Longitude W
Start: 32°55.9969'	Start: 158°00.0082
End: 32°55.9991'	End: 158°00.0082
Max Press: 16	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments		
1	15	14:00:21	15	✓			
2	15	↓	↓	✓			
3	15			✓			
4	15			✓			
5	15			✓			
6	15			✓			
7	15			✓			
8	15			✓			
9	15			✓			
10	15			14:00.50	↓	✓	
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							

S006C006.cnv



KM1906

GRADIENTS 3

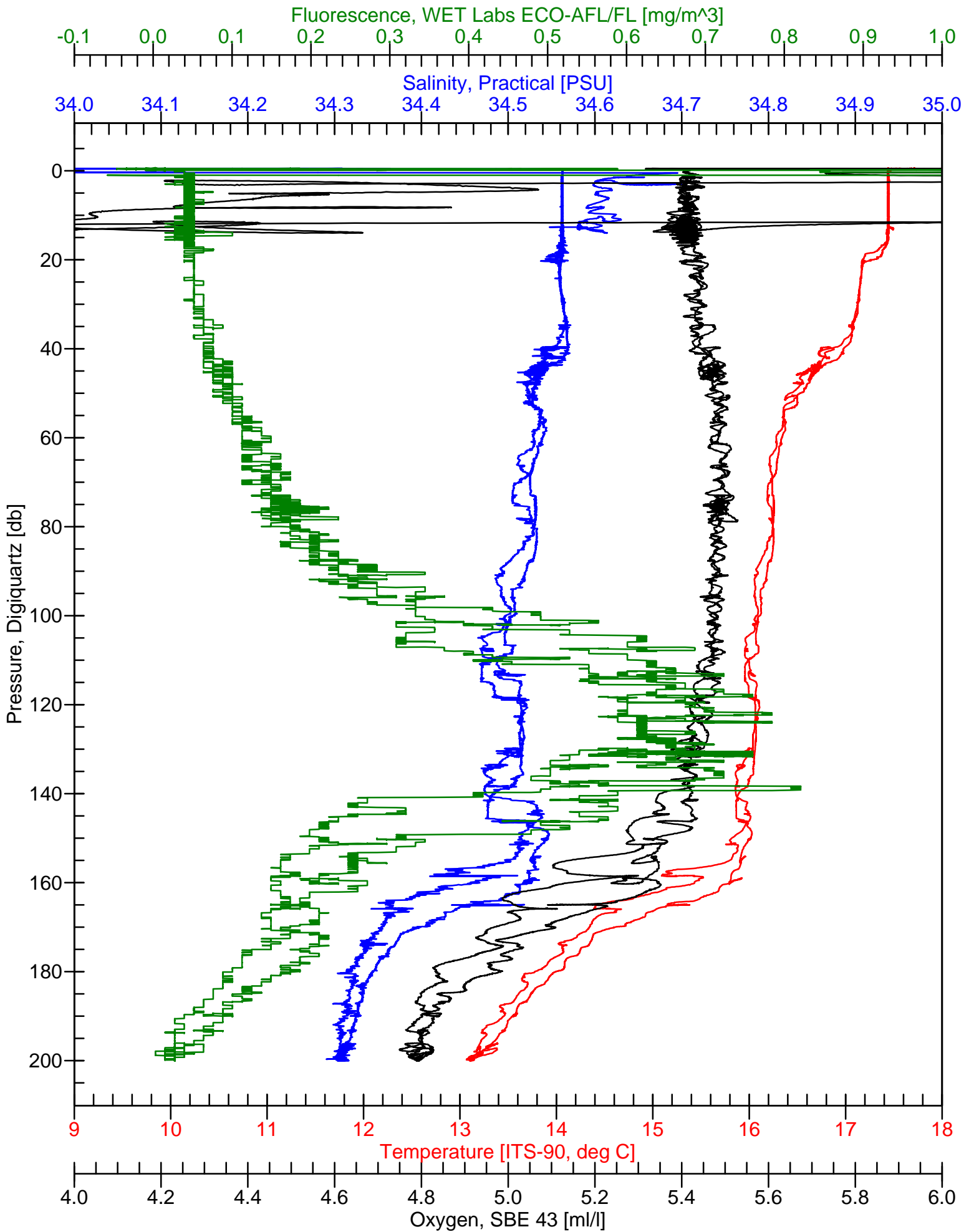
CTD CAST Logsheet

Station: 6	Cast: 7
Bottom (m):	Date (UTC):
Time Start Logging UTC: 16:15:23	
Pressure on deck	Time (UTC)
Start: -0.27	In water: 16:20:01
End: -0.32	Out water: 16:49
Latitude N	Longitude W
Start: 32°55.998	Start: 158°0.004
End: 32°55.973	End: 157°59.998
Max Press: 200	Operators: AW

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	~40m MLD ~130m DCM
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	130	16:36:00	131.47	✓	
2	130			✓	
3	130			✓	
4	130			✓	
5	130			✓	
6	130			✓	
7	130	16:37:55	130.61	✓	
8	75	16:40:26	75.23	✓	
9	75			✓	
10	75			✓	
11	75			✓	
12	75			✓	
13	75			✓	
14	75	16:41:07	75.67	✓	
15	45	16:42:40	45.8	✓	
16	45	16:42:50	45.1	✓	
17	45	16:42:56	43.5	✓	
18	15	16:44:36	14.23	✓	
19	15			✓	
20	15			✓	
21	15			✓	
22	15			✓	
23	15			✓	
24	15	16:45:18	14.67	✓	

S006C007.cnv



SCOPE-Gradients 3 (KM1906)

Molecular Depth Profile

Station # 6
 Cast # 7
 Operator(s): AW

Date: 4/22/19 (UTC)
 Time: 16:24 (UTC)
 Time: local

Coordinates: °N °W

Rosette Position	Desired Depth	Armbrust Transcript	Zehr	Annette	Lindell			
1	130		10					
2	130		10					
3	130	10						
4	130	10						
5	130			1				
6	130			1				
7	130			1				
8	75		10					
9	75		10					
10	75	10						
11	75	10						
12	75			1				
13	75		10					
14	75		10					
15	45			1				
16	45		10					
17	45		10					
18	15			1	10			
19	15		10					
20	15		10					
21	15	10						
22	15	10						
23	15				6			
24	15				6			

Notes:

KM1906

GRADIENTS 3

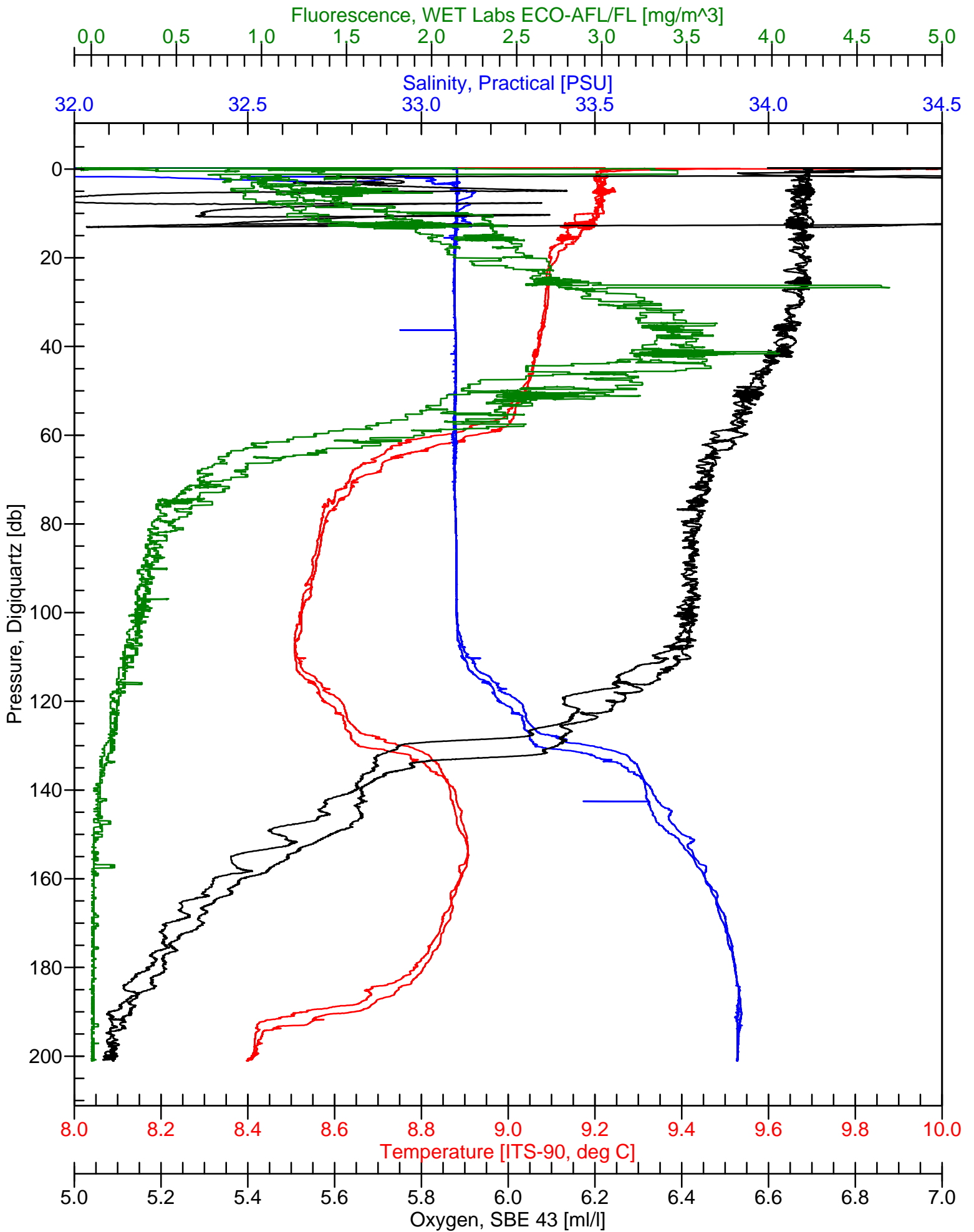
CTD CAST Logsheet

Station: 8	Cast: 2
Bottom (m): 5753	Date (UTC): 4/25/19
Time Start Logging UTC: 00:14	
Pressure on deck Start: -0.2002 End: -0.2072	Time (UTC) In water: 00:16 Out water: 00:51
Latitude N Start: 42° 20.0258' End: 42° 20.0416'	Longitude W Start: 158° 00.0339' End: 158° 00.0336'
Max Press: 200	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	DUM-41 db MLD-40 db stopped + slowed during downcast
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	100	00:37:58	101	✓	
2	75	00:39:59	75	✓	
3	75	↓	75	✓	
4	75	↓	75	✓	
5	75	00:40:45	75	✓	
6	41	00:42:36	41	✓	DUM
7	41	↓	41	✓	↓
8	41	↓	41	✓	
9	41	↓	41	✓	
10	41	↓	41	✓	
11	41	↓	41	✓	
12	41	↓	41	✓	
13	41	00:43:24	41	✓	↓
14	25	00:45:24	25	✓	
15	15	00:46:52	15	✓	
16	15	↓	15	✓	
17	15	↓	15	✓	
18	15	00:47:20	15	✓	
19	5	00:49:00	5	✓	
20	5	↓	↓	✓	
21	5	↓	↓	✓	
22	5	↓	↓	✓	
23	5	↓	↓	✓	
24	5	00:50:22	↓	✓	

S008C002.cnv



SCOPE-Gradients 3 (KM1906)

Molecular Depth Profile

Station # 8
 Cast # 2
 Operator(s): _____

Date: _____ (UTC)
 Time: _____ (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Armbrust Transcript	Zehr-amplicon	Annette	Zehr-dilution	Lindell		
1	100			1		2		
2	75	10						
3	75	10						
4	75		10			2		
5	75		10	1				
6	DCM				12			
7	DCM				12			
8	DCM				12			
9	DCM				12			
10	DCM	10		1				
11	DCM	10						
12	DCM		10					
13	DCM		10			2		
14	25			1		2		
15	15	10		1				
16	15	10				2		
17	15		10	1				
18	15		10					
19	5		10			2		
20	5		10					
21	5				12			
22	5				12			
23	5				12			
24	5				12			

Notes:

KM1906

GRADIENTS 3

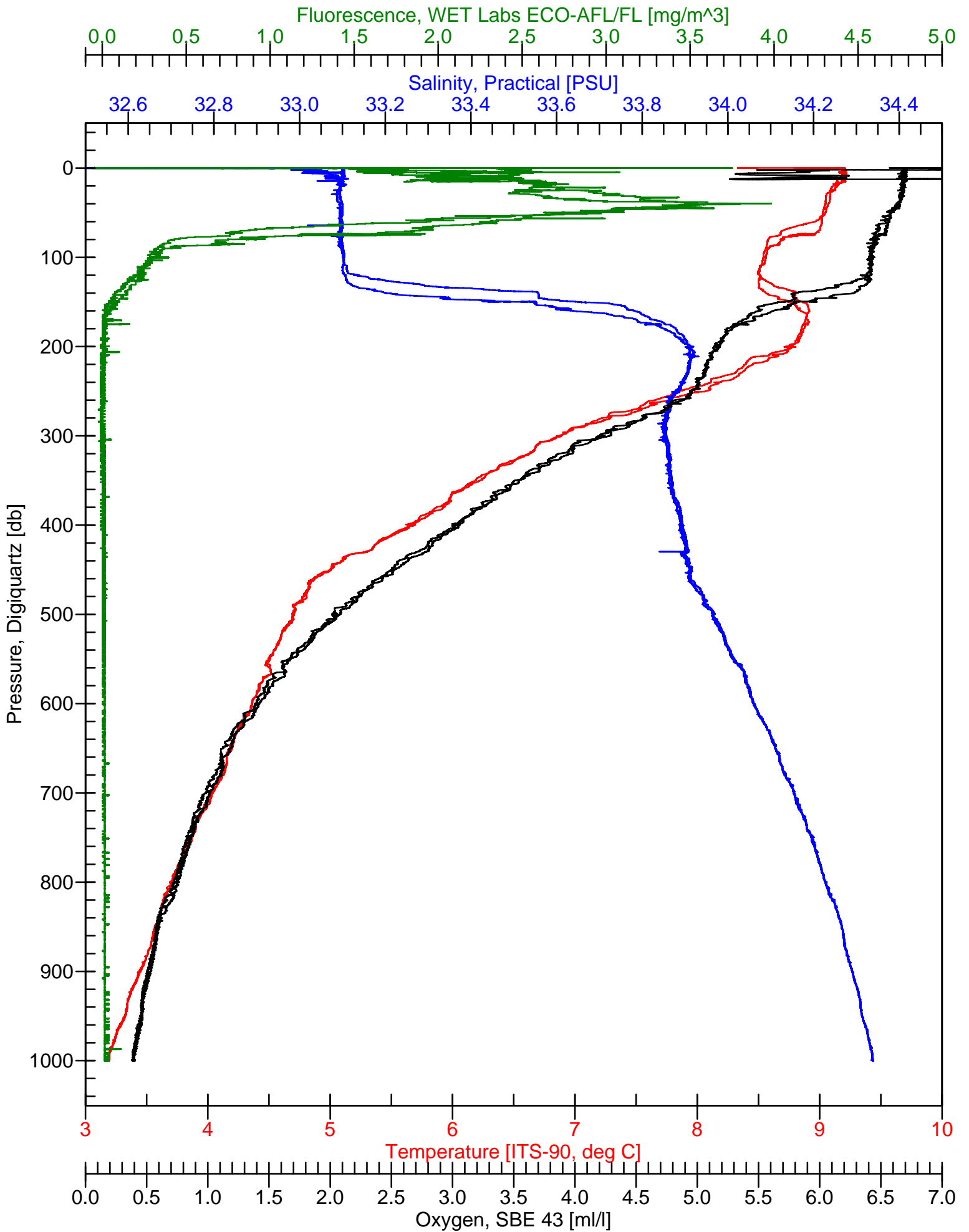
CTD CAST Logsheet

Station: 8	Cast: 3
Bottom (m): 5749	Date (UTC): 4/25/19
Time Start Logging UTC: 01:33	
Pressure on deck	Time (UTC)
Start: -0.1068	In water: 01:34
End: -0.2047	Out water: 02:39
Latitude N	Longitude W
Start: 42° 20.0054'	Start: 158° 00.0000
End: 42° 19.9559	End: 157° 59.9615
Max Press: 200	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	1000	02:01:18	1000	✓	
2	750	02:07:45	749	✓	
3	500	02:13:46	499	✓	
4	400	02:16:44	400	✓	
5	300	02:20:22	300	✓	
6	200	02:24:00	200	✓	
7	175	02:25:19	175	✓	
8	150	02:26:30	150	✓	
9	125	02:27:39	125	✓	
10	100	02:28:57	100	✓	
11	100	02:29:09	100	✓	
12	85	02:30:15	85	✓	
13	75	02:31:14	75	✓	
14	75	↓	75	✓	
15	75	02:32:01	75	✓	
16	45	02:33:29	45	✓	
17	45	02:33:45	45	✓	
18	25	02:34:40	25	✓	
19	25	02:34:55	25	✓	
20	15	02:35:42	15	✓	
21	15	02:35:55	15	✓	
22	5	02:37:10	5	✓	
23	5	↓	↓	✓	
24	5	02:37:40	↓	✓	

S008C003.cnv



KM1906

GRADIENTS 3

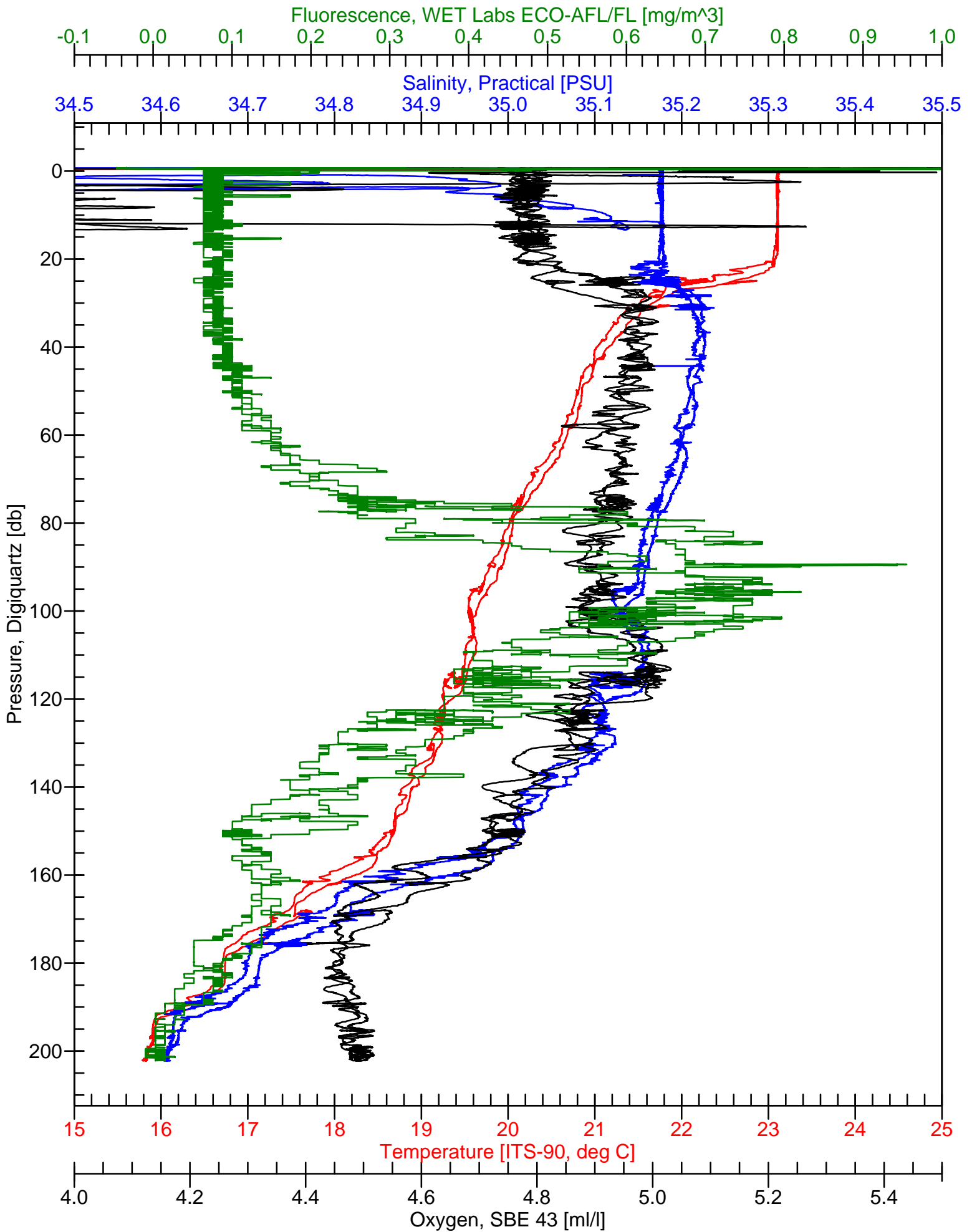
CTD CAST Logsheets

Station: 9	Cast: 1
Bottom (m): 5394	Date (UTC): 4/28/19
Time Start Logging UTC: 14:00	
Pressure on deck Start: -0.5705 End: -0.6919	Time (UTC) In water: 14:01 Out water: 14:29
Latitude N Start: 27° 04.4285' End: 27° 04.3651'	Longitude W Start: 157° 59.8956' End: 157° 59.8956'
Max Press: 200	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	
CTD: UH OTG ROSETTE: SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	200	14:12:13	200	✓	
2	150	14:14:30	150	✓	
3	125	14:16:15	125	✓	
4	115	14:16:59	115	✓	
5	100	14:18:40	100	✓	DCM
6	100	↓	101	✓	
7	95	14:19:50	95	✓	
8	75	14:21:10	75	✓	
9	75	↓	75	✓	
10	45	14:22:55	45	✓	
11	45	↓	45	✓	
12	25	14:24:44	25	✓	
13	15	14:25:55	15	✓	
14	15	↓	↓	✓	
15	15	↓	↓	✓	
16	15	↓	↓	✓	
17	15	↓	↓	✓	
18	15	↓	↓	✓	
19	15	14:26:45	↓	✓	
20	5	14:28:25	5	✓	
21	5	↓	↓	✓	
22	5	↓	↓	✓	
23					
24					

S009C001.cnv



KM1906

GRADIENTS 3

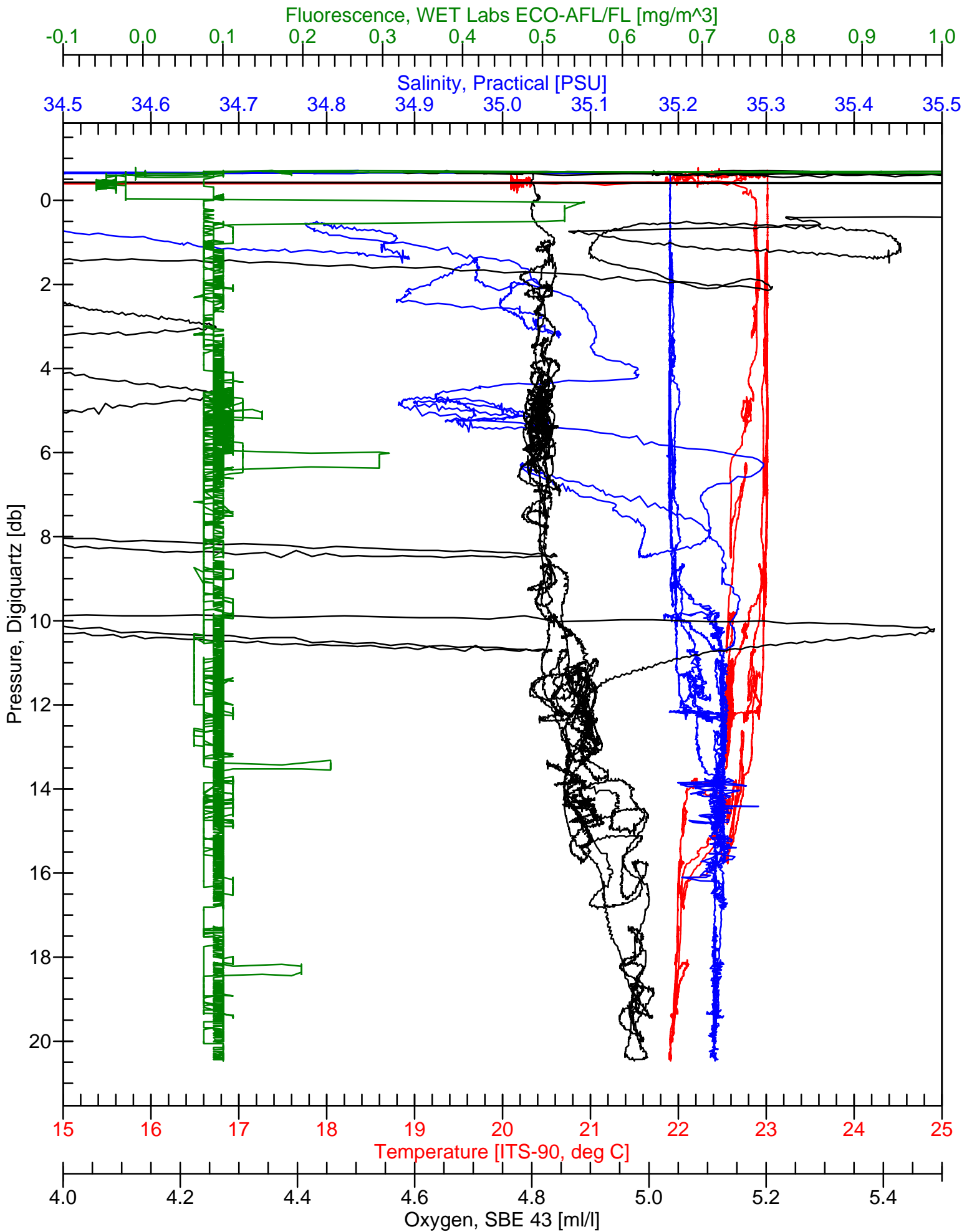
CTD CAST Logsheets

Station: 9	Cast: 2
Bottom (m): 5278	Date (UTC): 4/28
Time Start Logging UTC: 15:54	
Pressure on deck Start: -0.3970 End: -0.6059	Time (UTC) In water: 15:55 Out water: 16:06
Latitude N Start: 26°51.2976' End: 26°51.3115'	Longitude W Start: 157°59.9057' End: 157°59.9048'
Max Press: 20	Operators: TR

CTD Setup	Comments:
Dual Temperature Dual Conductivity Dual Oxygen Dual Fluorometer PAR Transmissometer Lowered ADCP	
<u>CTD:</u> UH OTG <u>ROSETTE:</u> SCOPE	

Niskin	Target (m)	Time GMT Stopped	Pressure	Confirm Trip ✓	Comments
1	15	16:01:55	15	✓	
2	15	↓	↓	✓	
3	15	↓	↓	✓	
4	15	↓	↓	✓	
5	15	↓	↓	✓	
6	5	16:04:15	5	✓	
7	5	↓	↓	✓	
8	5	↓	↓	✓	
9	5	↓	↓	✓	
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

S009C002.cnv



SCOPE-Gradients 3 (KM1906)

NPSG Cast

Station # 9
 Cast # 2
 Operator(s): _____

Date: 04.28.19 (UTC)
 Time: 06:00 (UTC)
 Time: _____ local

Coordinates: °N °W

Rosette Position	Desired Depth	Lindell (Julia)	Carolyn	Zehr					
1	15	10							
2	15	10							
3	15	10							
4	15		1						
5	15								
6	5			10					
7	5								
8	5								
9	5								
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									

Notes:

Hawaii Ocean Time-series

KM1906 Sediment Trap Data Sheet

Deployment

Type of traps:	PIT	Date:	4/16/19
Operator(s):	TB, RT, KB, AW, TR, JD	Wind:	10-12 KT
Position in:	41° 40.287' N, 158° 00.795' W	Sea State:	6-8' ground swell
Time in (GMT):	07:59:50		
Time released (GMT):	08:51:47 08:51:47		

Recovery

Operator(s):	TB, RT, KB, AW, TR, JD	Date:	4/18/19
Start recovery (GMT):	20:00 20:00	Wind:	5-10 KT
Time out (GMT):	TRAP 100: 20:24, TRAP 200: 20:34, TRAP 300: 20:39	Sea state:	6-8' ground swell
Position out:	41° 35.9' N, 157° 56.9' W		
Weight on board (GMT):	20:44		

Comments: 100 m trap k-1 (line) broke on recovery.

Data Sheet for Sediment Trap Volumes

Cruise #: KM1906
 Stn #: 4
 Analyst: TB/RT/TR

04/15/19

Directions: 1) Mark the traps with 2 lines
 a) Line #1 is at the interface

#	Trap Name	Depth (m)	Owner	Status	Source soln.	Height (cm) at Line #2 (Top Line)
1	A	100	KARL	DEAD	A	38.5
2	B	100	KARL	DEAD	A	39.0
3	C	100	KARL	DEAD	A	39.0
4	D	100	KARL	DEAD	A	40.0
5	E	100	KARL	DEAD	A	39.5
6	F	100	KARL	DEAD	A	39.5
7	G	100	KARL	DEAD	A	39.0
8	H	100	KARL	DEAD	A	39.0
9	I	100	JOHN	DEAD	A	39.5
10	J	100	WHITE	LIVE	LIVE	37.5
11	K	100	INGALLS	LIVE	LIVE	XX
12	L *	100	INGALLS	LIVE CTL	LIVE	-

* Control filled to the top.
 ** Broken upon recovery!

Data Sheet for Sediment Trap Volumes

Cruise #: KM1906
 Stn #: 4
 Analyst: TB/RT/TR

04/15/19

Directions: 1) Mark the traps with 2 lines
 a) Line #1 is at the interface

#	Trap Name	Depth (m)	Owner	Status	Source soln.	Height (cm) at Line #2 (Top Line)
1	A	200	KARL	DEAD	A	36.5
2	B	200	KARL	DEAD	A	37.0
3	C	200	KARL	DEAD	A	37.5
4	D	200	KARL	DEAD	A	40
5	E	200	KARL	DEAD	A	38
6	F	200	KARL	DEAD	B	37.5
7	G	200	KARL	DEAD	BAR B	37.0
8	H	200	KARL	DEAD	B	36.5
9	I	200	KARL	DEAD	B	37.5
10	J	200	JOHN	DEAD	B	37.0
11	K	200	INGALLS	LIVE	LIVE	36.0
12	L ✕	200	INGALLS	LIVE CTL	LIVE	—

✕ Control - filled to the top

Data Sheet for Sediment Trap Volumes

Cruise #: KM1906
 Stn #: 4
 Analyst: TB/RT/TR

04/15/19

Directions: 1) Mark the traps with 2 lines
 a) Line #1 is at the interface

+5cm, no ~~1st~~ second line

#	Trap Name	Depth (m)	Owner	Status	Source soln.	Height (cm) at Line #2 (Top Line)
1	A	300	KARL	DEAD	B	38.0
2	B	300	KARL	DEAD	B	38.0
3	C	300	KARL	DEAD	B	38.5
4	D	300	KARL	DEAD	B	37.5
5	E	300	KARL	DEAD	B	39.5
6	F	300	KARL	DEAD	B	37.5
7	G	300	KARL	DEAD	B	38.0
8	H	300	KARL	DEAD	B	37.5
9	I	300	KARL	DEAD	B	39.0
10	J	300	JOHN	DEAD	B	37.5
11	K	300	INGALLS	LIVE	LIVE	37.0
12	L \forall	300	INGALLS	LIVE CTL	LIVE	37.0 -

*full to top for control

TM
Gradients 3.0 Cast Data Sheet

Station 3	Date (HST) 4/14/19	Time in (HST)	Time out (HST)
Event	Date (GMT)	Time in (GMT)	Time out (GMT)
Operators:		Latitude: 36° 54.6474N	
CTD File Name: km1906-TM-Q3-co#		Longitude: 158° 00.0366' W	
PSI on deck IN		~MLD depth	
PSI on deck OUT		~DCM depth	
		~SST	

Cast 2

Notes/Comments Station 3 TM profile cast
 D 325 250

Niskin #	Depth	dtms	ptms	Mettler Trink	Hgt	CSV liquids	TM metabs	Hg ^{dt}
1	600	X	X	X	X	X19	X	
2	500					18		
3	400					17		
4	350					16		
5	300					15		
6	250					14		
7	200							
8	150					13		
9	100					12		
10	50					11		
11	25					10		
12	15	↓	↓	↓	↓	↓9	↓	
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								

did not fire

Gradients 3.0 Trace Metal Cast Data Sheet

cast 2

ation 4	Date (HST) 4/16/19	Time in (HST) 7:00	Time out (HST)
Event	Date(GMT)	Time in (GMT)	Time out (GMT)
		Latitude: 41° 40.624 N	
TM CTD File Name: KM1906-54-tm-cw		Longitude: 158° 02.3611	
PSI on deck IN		~MLD depth	
PSI on deck OUT		~DCM depth	
		~SST	

Notes/Comments

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	600	1					
2	500	2					
3	400	3					
4	350	4					
5	300	5					
6	250	6					
7	200	7					
8	150	8					
9	100	9					
10	40	10					
11	25	11					
12	15	12					

Gradients 3.0 Trace Metal Cast Data Sheet

Station	4	Date (HST)	4/16/19	Time in (HST)	6:45	Time out (HST)	7:20
Event		Date (GMT)		Time in (GMT)	16:45	Time out (GMT)	17:20
TM CTD File Name:				Latitude:	41° 40.815 N		
				Longitude:	158° 03.0304 W		
PSI on deck IN		-MLD depth					
PSI on deck OUT		-DCM depth					
		-SST					

Notes/Comments: surface cast cast 5

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	3	4	18	16			
2	4	4	18	16			
3	5	4	18	16			
4							
5							
6							
7							
8							
9							
10	9	10	15	11.9			
11	10	10	15	11.9			
12	11	10	15	11.9			

Gradients 3.0 Trace Metal Cast Data Sheet

Station 4	Date (HST) 4/16/19	Time in (HST) 15:00	Time out (HST)
Event	Date (GMT)	Time in (GMT)	Time out (GMT)
		Latitude: 41° 40.8572 N	
TM CTD File Name: KM1906-tm-54		Longitude: 158° 03.0396 W	
PSI on deck IN		-MLD depth	
PSI on deck OUT		-DCM depth	
		-SST	

cast 9

Notes/Comments Cast 9

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	3	4	22				
2	4	4	22				
3	5	4	22				
4							
5							
6							
7							
8							
9							
10	9	10	18				
11	10	10	18				
12	11	10	18				

Gradients 3.0 Trace Metal Cast Data Sheet

Station	4	Date (HST)	4/16/19	Time in (HST)	18:00	Time out (HST)	18:24	
Event	93	Date (GMT)		Time in (GMT)	04:02	Time out (GMT)	04:24	
				Latitude:	41° 40.8868 N			
TM CTD File Name: KM1906-bm-st4cast				Longitude:	158° 02.9994 W			
				12				
PSI on deck IN				-MLD depth				
PSI on deck OUT				-DCM depth				
				-SST 10.1				

Notes/Comments Cast 12

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	3	4	22				
2	4	4	22				
3	5	4	22				
4							
5							
6							
7							
8							
9							
10	9	10	18				
11	10	10	18				
12	11	10	18				

Gradients 3.0 Trace Metal Cast Data Sheet

Station	4	Date (HST)	4/16/19	Time in (HST)	Time out (HST)
Event		Date (GMT)		Time in (GMT)	Time out (GMT)
				Latitude: 41° 38.8953 N	
TM CTD File Name: <i>141906_fm_H4</i>				Longitude: 157° 55.0241 W	
				<i>cast 14</i>	
PSI on deck IN		-MLD depth			
PSI on deck OUT		-DCM depth			
		-SST			

Notes/Comments

Cast 14

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	1	2	25				
2	2	2	25				
3	3	2	25				
4	4	5	22				
5	5	5	22				
6	6	5	22				
7	7	8	18				
8	8	8	18				
9	9	8	18				
10	10	10	15				
11	11	10	15				
12	12	10	15				

2 25
5 22
8 18
11 15

Gradients 3.0 Trace Metal Cast Data Sheet

Station	4	Date (HST)	4/17/19	Time in (HST)	1:47	Time out (HST)	
Event		Date (GMT)		Time in (GMT)		Time out (GMT)	
				Latitude:	41° 37.0816 N		
TM CTD File Name: KH1906-tm-stu-cast				Longitude:	157° 55.8105 W		
PSI on deck IN				~MLD depth			
PSI on deck OUT				~DCM depth			
				~SST 9.992			

Notes/Comments Bryn lwe cast Cast 15.5

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	1	2	25				
2	2	2	25				
3	3	2	25				
4	4	5	22				
5	5	5	22				
6	6	5	22				
7	7	8	18				
8	8	8	18				
9	9	8	18				
10	10	10	15				
11	11	10	15				
12	12	10	15				

Gradients 3.0 Trace Metal Cast Data Sheet

Station	4	Date (HST)	4/17/19	Time in (HST)	6:	Time out (HST)
Event		Date (GMT)		Time in (GMT)		Time out (GMT)
				Latitude: 41° 27.0894		
TM CTD File Name: KM1906-tm-SYcast17				Longitude: 157° 56.2125		
PSI on deck IN		~MLD depth				
PSI on deck OUT		~DCM depth				
		~SST 9.953				

Notes/Comments

Jiwoon Inc Cast

Cast 17

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	1	2	25				
2	2	2	25				
3	3	2	25				
4	4	5	22				
5	5	5	22				
6	6	5	22				
7	7	8	18				
8	8	8	18				
9	9	8	18				
10	10	10	15	not fully closed			
11	11	10	15				
12	12	10	15				

Gradients 3.0 Trace Metal Cast Data Sheet

14

ation 4	Date (HST) 4/17/19	Time in (HST) 14:00	Time out (HST) 2:30
Event	Date (GMT)	Time in (GMT)	Time out (GMT)
		Latitude: 41 40.78	
TM CTD File Name: KM1906-f		Longitude: 157 58	
		-SST 9.82°C	
PSI on deck IN	-MLD depth		
PSI on deck OUT	-DCM depth		
	-SST 9.82°C		

Notes/Comments

Trace metal dial - 6 bottles

Cast ~~20~~ 20

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	3	4	18				
2	4	4	18				
3	5	4	18				
4	10	10	15				
5	11	10	15				
6	12	10	15				
7	/	/					
8	/	/					
9	/	/					
10	/	/					
11	/	/					
12	/	/					

Gradients 3.0 Trace Metal Cast Data Sheet

Station	4	Date (HST)	4/17/19	Time in (HST)	5:54 PM	Time out (HST)	6:08	
Event	107	Date (GMT)		Time in (GMT)		Time out (GMT)	16:17	
				Latitude:	41° 36.4433 N			
TM CTD File Name: KM1906-tm574 cast				Longitude:	157° 54.1690 W			
PSI on deck IN				~MLD depth				
PSI on deck OUT				~DCM depth				
				~SST				

Notes/Comments

6 bottle cast Cast 22
Diel

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	3	4	18				
2	4	4	18				
3	5	4	18				
4	/	/					
5	/	/					
6	/	/					
7	/	/					
8	/	/					
9	/	/					
10	9	10	15				
11	10	10	15				
12	11	10	15				

Gradients 3.0 Trace Metal Cast Data Sheet

Station	4	Date (HST)	4/17/19	Time in (HST)	10:05	Time out (HST)	10:21
Event	109	Date (GMT)	4/18/19	Time in (GMT)	08:05	Time out (GMT)	08:21
				Latitude:	41° 38.1452 N		
TM CTD File Name: KM1906-tm-stu-cast				Longitude:	157° 54.6050 W		
				24			
PSI on deck IN				~MLD depth			
PSI on deck OUT				~DCM depth			
				~SST			

Notes/Comments Diel Cast Cast 24

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	3	4	18				
2	4	4	18				
3	5	4	18				
4	/	/					
5	/	/					
6	/	/					
7	/	/					
8	/	/					
9	/	/					
10	9	10	15				
11	10	10	15				
12	11	10	15				

Gradients 3.0 Trace Metal Cast Data Sheet

Station	4	Date (HST)	4/18/19	Time in (HST)	2:01	Time out (HST)	2:15
Event	114	Date (GMT)	4/18/19	Time in (GMT)	12:01	Time out (GMT)	12:15
				Latitude: 41036.1283N			
TM CTD File Name: KM Rob. fm. A4 cast				Longitude: 157° 54.9197 W			
PSI on deck IN			-MLD depth				
PSI on deck OUT			-DCM depth				
			-SST				

Notes/Comments

TM DieI cast
for Bryn

Cast 26

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	1	2	25				
2	2	2	25				
3	3	2	25				
4	4	5	22				
5	5	5	22				
6	6	5	18				
7	7	8	18				
8	8	8	18				
9	9	8	18				
10	10	11	15				
11	11	11	15				
12	12	11	15				

Gradients 3.0 Trace Metal Cast Data Sheet

Station	4	Date (HST)	4/18/19	Time in (HST)	06:14	Time out (HST)	
Event	117	Date (GMT)		Time in (GMT)	16:19	Time out (GMT)	
				Latitude:	41° 35.5119 N		
TM CTD File Name: KM1906-tim-st4cast				Longitude:	157° 54.7577 W		
				29			
PSI on deck IN				-MLD depth			
PSI on deck OUT				-DCM depth			
				-SST			

Notes/Comments

TM dial for isotopes and
Katherine Cast 29

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	1	2	600				
2	2	2	600				
3	3	2	600				
4	4	5	597				
5	5	5	597				
6	6	5	597				
7	7	7	300				
8	8	8	200				
9	9	9	125				
10	10	10	70				
11	11	11	40				
12	12	12	25				

Gradients 3.0 Trace Metal Cast Data Sheet

Station 5	Date (HST) 4/19/19	Time in (HST)	Time out (HST)
Event	Date (GMT)	Time in (GMT)	Time out (GMT)
TM CTD File Name: KM1906-tm-st5cast2		Latitude: 36° 59.9787 N	Longitude: 157° 59.9606 W
PSI on deck IN		~MLD depth	
PSI on deck OUT		~DCM depth	
Notes/Comments		~SST 13.776	

TM profile

Cast 2

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	1	1	500				
2	2	2	400				
3	3	3	300				
4	4	4	250				
5	5	5	200				
6	6	6	150				
7	7	7	80				
8	8	8	50				
9	9	9	25				
10	10	11	18				
11	11	11	18				
12	12	11	18				

Gradients 3.0 Trace Metal Cast Data Sheet

Station	5	Date (HST)	4/20	Time in (HST)	02:00	Time out (HST)	02:30
Event	130	Date (GMT)		Time in (GMT)		Time out (GMT)	
				Latitude:	36.59.9801		
TM CTD File Name: KMA06-tm-sts cast 5				Longitude:	157.59.9981		
PSI on deck IN				~MLD depth /			
PSI on deck OUT				~DCM depth /			
				~SST /			

Notes/Comments

For incubations

Cast 5

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	3	10 4	18				
2	4	4	18				
3	5	4	18				
4	9	10	15				
5	10	10	15				
6	11	10	15				
7							
8							
9							
10							
11							
12							

Gradients 3.0 Trace Metal Cast Data Sheet

Station 6	Date (HST) 4/22/19	Time in (HST) 04:29	Time out (HST)
Event	Date (GMT)	Time in (GMT)	Time out (GMT)
TM CTD File Name: FM1906-tm-ab-cast		Latitude: 32° 55.9898 N	
		Longitude: 158° 00.0092 W	
PSI on deck IN		~MLD depth	
PSI on deck OUT		~DCM depth	
		~SST	

Notes/Comments

TM profile cast

Cast 7

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	1	1	400				
2	2	2	350				
3	3	3	250				
4	4	4	200				
5	5	5	150				
6	6	6	115				
7	7	7	75				
8	8	8	40				
9	9	9	25				
10	10	11	15				
11	11	11	15				
12	12	11	15				

Gradients 3.0 Trace Metal Cast Data Sheet

Station	8	Date (HST)	4/24/19	Time in (HST)	13:47	Time out (HST)	14:01	
Event		Date (GMT)		Time in (GMT)		Time out (GMT)		
				Latitude:	42° 00.0333 N			
TM CTD File Name:				Longitude:	158° 00.357 W			
↪ KM1906 - st 8 cast 1. Lox								
PSI on deck IN			~MLD depth					
PSI on deck OUT			~DCM depth					
			~SST					

Notes/Comments

Cast 1

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	1	2	25				
2	2	2	25	23.2	didn't close	b/c foot blocked	noisen
3	3	2	25				
4	4	5	22				
5	5	5	22	19.9			
6	6	5	22				
7	7	8	19				
8	8	8	19	16.8			
9	9	8	19				
10	10	11	16				
11	11	11	16	14.7			
12	12	11	16				

Gradients 3.0 Trace Metal Cast Data Sheet

Station	8	Date (HST)	4/24/19	Time in (HST)	5:17:00	Time out (HST)	
Event	85	Date (GMT)		Time in (GMT)		Time out (GMT)	
				Latitude:	42° 20.		
TM CTD File Name:				Longitude:	15		
PSI on deck IN				~MLD depth			
PSI on deck OUT				~DCM depth			
				~SST			

Notes/Comments

Bottle #	Position	Trigger	Target Depth	Actual Depth			
1	1	1	400				
2	2	2	300				
3	3	3	200				
4	4	4	150				
5	5	5	100				
6	8	6	75				
7	7	7	50				
8	8	8	40 (DCM)				
9	9	9	25				
10	10	11	18				
11	11	11	18				
12	12	11	18				

Thermosalinograph Salinity Log

Bottle	Bottle SN	Date	Time	TSG Salinity	^{Ext} TSG Temperature	Notes
1	861B	4/11	23:40:40	35.520	21.841	Metscreen frozen. Sal/Temp values inaccurate
2	862	4/13	19:24:55	34.939	17.560	
3	863	4/14	10:24:50	34.354	15.231	
4	864	4/17	16:25:55	33.586	9.888	
5	865	4/18	00:12:41	33.583	9.908	
6	866	4/19	02:18:51	34.076	13.780	
7	867	4/20	21:35:05	34.007	13.490	
8	868	4/22	21:58:42	34.711	16.844	
9	869	4/24	03:01:55	33.853	11.899	
10	870	4/24	08:16:50	33.787	11.501	
11	871	4/24	13:49:58	33.877	11.403	
12	872	4/25	04:15:59	33.412	9.190	
13	873	4/25	22:36:49	33.899	12.019	
14	874	4/26	05:34:15	34.011	13.023	
15	875	4/26	07:27:15	34.288	13.599	
16	876	4/26	15:16:45	34.198	14.058	
17	877	4/26	18:58:30	34.525	14.891	
18	878	4/26	22:46:15	34.526	15.205	
19	879	4/27	03:27:25	34.802	16.719	
20	880	4/27	07:36:03	34.938	17.479	
21	881	4/27	17:46:55	34.998	18.348	
22	882	4/28	02:03:42	35.578	21.260	
23	883	4/28	07:24:25	35.518	22.037	
24	884	4/28	20:54:13	35.456	23.410	

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CTD Cast Salinity Log

Bottle	Bottle SN	Date	Station	Cast	Notes
1	669B	4/13	2	1	
2	670				
3	671B				
4	672B				
5	673				
6	674				
10	675				
20	676				
24	677	↓	↓	↓	
1	678	4/15	3	3	
2	679B				
3	691				
8	681B				
12	682B				
18	683	↓	↓	↓	
1	684	4/16	4	1	
3	685				
6	686B				
15	687B				
21	688B	↓	↓	↓	
1	680	4/21	6	1	
2	689				
3	690				
5	692B	↓	↓	↓	

GRADIENTS 3

LADCP Logging: ~~HOB~~ 311

RECORD
DIRECTORY

Deployment				Recovery				
Cast Name	Datetime ON (UTC)	Time Difference	Operator	Cast Name	Datetime OFF (UTC)	Time Difference	Operator	Notes
S1C1	06:20:ish	0	TR	S1C1	07:55:15 ✓	0	TR	dn001_01.log
S2C2	06:25	0	TR	S2C2	07:52 ✓	0	TR	
S3C1	23:28	1	TR+CB	S3C1	06:28 ✓	1	TR+CB	
S3C3	02:00	1	TR+CB	S3C3	03:59 ✓	0	CB	
S4C1	09:00	0	CB	S4C1	11:17 ✓	0	CB	
S4C3	12:24	1	CB	S4C3	13:35 ✓	0	CB	saved as 004.02
S4C4	15:29	0	CB	S4C4	16:32 ✓	1	CB	
S4C6	17:18	1	CB	S4C6	19:58 ✓	1	CB	cast 6 in 005 cast 7
S4C8	22:55	1	CB	S4C8	00:03 ✓	1	CB	
S4C10	01:01	1	CB	S4C10	02:26 ✓	0	CB	
S4C11	03:12	0	CB	S4C11	03:56 ✓	1	CB	
S4C13	08:30	1	CB	S4C13	09:23 ✓	0	CB	
S4C15	12:10	1	CB	S4C15	14:27 ✓	0	CB	Left recording a while.
S4C16	15:23	0	TR	S4C16	16:18 ✓	0	TR	File not yet dl'ed (16:26)
not started for cast 17/18 this data should be cast 16 or so				S4C18	22:29	0	AW	when file to download entered 14
S4C19	22:46	0	CB	S4C19	23:52 ✓	0	CB	
S4C21	2 27	0	CB	S4C21	03:40 ✓	1	CB	
S4C23	06:50	1	CB	S4C23	08:13 ✓	0	CB	
S4C25	10:51	1	CB	S4C25	11:39 ✓	0	CB	
S4C27	12:23	1	CB	S4C27	13:45 ✓	0	CB	

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