Station / Tow

BONGO TOWS

EXPEDITION	Ship	STANO	Sample Date	Start time	Event No.	Tow Type	Max Depth	Vol H2O filtered
CCE-LTER-P1106	R/V MELVILLE	UPFRONT1 -1	06/19/11	2138	16	Vertical	99.03	76.17
CCE-LTER-P1106	R/V MELVILLE	UPFRONT1 -2	06/19/11	2303	23	Vertical	97.44	72.81
CCE-LTER-P1106	R/V MELVILLE	UPFRONT1 -3	06/20/11	0013	30	Vertical	98.16	66.69
CCE-LTER-P1106	R/V MELVILLE	UPFRONT1 -4	06/20/11	0129	36	Vertical	99.25	67.28
CCE-LTER-P1106	R/V MELVILLE	UPFRONT1 -5	06/20/11	0244	42	Vertical	99.98	81.93
CCE-LTER-P1106	R/V MELVILLE	UPFRONT1 -6	06/20/11	0408	48	Vertical	100.00	68.86
CCE-LTER-P1106	R/V MELVILLE	Cycle 1 - 1	06/24/11	1035	78	Oblique	232.95	453.69
CCE-LTER-P1106	R/V MELVILLE	Cycle 1 - 2	06/25/11	0106	96	Oblique	220.83	527.64
CCE-LTER-P1106	R/V MELVILLE	Cycle 1 - 3	06/25/11	0918	105	Oblique	207.64	450.27
CCE-LTER-P1106	R/V MELVILLE	Cycle 1 - 4	06/26/11	0012	123	Oblique	192.57	557.25
CCE-LTER-P1106	R/V MELVILLE	Cycle 2 - 1	06/27/11	1732	176	Oblique	212.40	505.91
CCE-LTER-P1106	R/V MELVILLE	Cycle 2 - 2	06/27/11	2158	183	Oblique	215.32	448.93
CCE-LTER-P1106	R/V MELVILLE	Cycle 2 - 3	06/28/11	1019	198	Oblique	215.80	438.86
CCE-LTER-P1106	R/V MELVILLE	Cycle 2 - 4	06/28/11	2055	207	Oblique	221.02	423.88
CCE-LTER-P1106	R/V MELVILLE	Cycle 3 - 1	06/30/11	0926	247	Oblique	223.41	439.08
CCE-LTER-P1106	R/V MELVILLE	Cycle 3 - 2	06/30/11	2125	258	Oblique	215.56	460.30
CCE-LTER-P1106	R/V MELVILLE	Cycle 3 - 3	07/01/11	0938	282	Oblique	221.07	445.28
CCE-LTER-P1106	R/V MELVILLE	Cycle 3 - 4	07/01/11	2055	298	Oblique	225.35	458.23
CCE-LTER-P1106	R/V MELVILLE	UPFRONT2 -1	07/02/11	2005	313	Vertical	98.48	57.14
CCE-LTER-P1106	R/V MELVILLE	UPFRONT2 -2	07/02/11	2106	320	Vertical	99.62	62.52
CCE-LTER-P1106	R/V MELVILLE	UPFRONT2 -3	07/02/11	2205	325	Vertical	99.25	63.26
CCE-LTER-P1106	R/V MELVILLE	UPFRONT2 -4	07/02/11	2309	331	Vertical	97.81	59.34
CCE-LTER-P1106	R/V MELVILLE	UPFRONT2 -5	07/02/11	0010	337	Vertical	99.76	61.06
CCE-LTER-P1106	R/V MELVILLE	UPFRONT2 -6	07/03/11	0116	343	Vertical	100.00	57.43
CCE-LTER-P1106	R/V MELVILLE	UPFRONT2 -7	07/03/11	0223	349	Vertical	100.00	53.49
CCE-LTER-P1106	R/V MELVILLE	UPFRONT2 -8	07/03/11	0331	355	Vertical	100.00	60.02
CCE-LTER-P1106	R/V MELVILLE	UPFRONT2 -9	07/03/11	0432	361	Vertical	100.00	52.43
CCE-LTER-P1106	R/V MELVILLE	UPFRONT2 -10	07/03/11	0534	367	Vertical	100.00	55.62
CCE-LTER-P1106	R/V MELVILLE	Cycle 4 - 1	07/07/11	1003	396	Oblique	221.62	393.49
CCE-LTER-P1106	R/V MELVILLE	Cycle 4 - 2	07/07/11	2139	411	Oblique	223.64	409.38
CCE-LTER-P1106	R/V MELVILLE	Cycle 4 - 3	07/08/11	0931	437	Oblique	221.77	427.88
CCE-LTER-P1106	R/V MELVILLE	Cycle 4 - 4	07/08/11	2108	448	Oblique	227.78	381.80
CCE-LTER-P1106	R/V MELVILLE	Cycle 5 - 1	07/10/11	0944	480	Oblique	213.12	495.43
CCE-LTER-P1106	R/V MELVILLE	Cycle 5 - 2	07/10/11	2120	494	Oblique	214.10	449.01
CCE-LTER-P1106	R/V MELVILLE	Cycle 5 - 3	07/11/11	0953	519	Oblique	225.43	460.02
CCE-LTER-P1106	R/V MELVILLE	Cycle 5 - 4	07/11/11	2108	528	Oblique	218.38	440.57
CCE-LTER-P1106	R/V MELVILLE	Cycle 6 - 1	07/13/11	0853	555	Oblique	212.98	501.79
CCE-LTER-P1106	R/V MELVILLE	Cycle 6 - 2	07/13/11	2123	560	Oblique	220.77	466.70
CCE-LTER-P1106	R/V MELVILLE	Cycle 6 - 3	07/14/11	0945	582	Oblique	216.04	426.33
CCE-LTER-P1106	R/V MELVILLE	Cycle 6 - 4	07/14/11	2109	592	Oblique	216.58	408.61
CCE-LTER-P1106	R/V MELVILLE	UPFRONT3 -1	07/15/11	2115	613	Vertical	99.94	46.20
CCE-LTER-P1106	R/V MELVILLE	UPFRONT3 -2	07/15/11	2220	619	Vertical	99.98	45.55
CCE-LTER-P1106	R/V MELVILLE	UPFRONT3 -3	07/15/11	2313	625	Vertical	99.98	45.62
CCE-LTER-P1106	R/V MELVILLE	UPFRONT3 -4	07/16/11	0008	631	Vertical	99.98	44.00
CCE-LTER-P1106	R/V MELVILLE	UPFRONT3 -5	07/16/11	0111	637	Vertical	99.62	51.85
CCE-LTER-P1106	R/V MELVILLE	UPFRONT3 -6	07/16/11	0213	643	Vertical	100.00	40.03
CCE-LTER-P1106	R/V MELVILLE	UPFRONT3 -7	07/16/11	0318	649	Vertical	99.94	47.49
CCE-LTER-P1106	R/V MELVILLE	UPFRONT3 -8	07/16/11	0422	655	Vertical	99.98	43.90
CCE-LTER-P1106	R/V MELVILLE	UPFRONT3 -9	07/16/11	0525	661	Vertical	99.45	53.69
CCE-LTER-P1106	R/V MELVILLE	UPFRONT3 -10	07/16/11	0633	667	Vertical	100.00	51.20

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	1	1	78	2011-6-24	1035	1057

TIME	Min.	Sec.		PORT	STB.
SINKING (descend)	6 ′	23 ″	NET NO.	LTER #5	LTER #2
			METER NO.	08786	|
TOWING (at depth)	′	35 ″	FINAL	196497	|
			INITIAL	154010	|
Total (ascend)	14 ′	35 ″	DIFF.	42487	|
			MESH SIZE	202 µm	202 µm

TOW TYPE: Cal bobl

TOW NO. 1 OF 1

SEA (Conditions): (Circle one) Calm / **Moderate** (circled) / Rough

WIND: 20 knots

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 3 down 9 up

OBSERVERS: [illegible]

ANGLES											30		29		35
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160

ANGLES		35		36		down 57 / 32		39		down 54 / 32		51		down 55	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

wire out recorded by [illegible]

	PORT	STB.
No. OF JARS	|	1
SIZE OF JAR (Circle One)	P Q	P **Q** (circled)
FORMALIN & BORATE ADDED		CN
ALCOHOL ADDED		X
COLLECTORS INITS.	|	CN

NET CLOGGING	none or slight X	moderate	heavy	very heavy
NET WASHING	none	rinsed X	washed	
RIPS AND HOLES IN NET	none X	location	when mended: (Circle one)	Before station / After station

REMARKS: 150lb weight [illegible]
wire slipped on meter wheel estimated mwo by time out ([illegible])

estimated depth [illegible] at 30 m/minute

290 mwo

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	1	2	96	2011-6-25	0106	0130

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: (a) bobl
SINKING (descend)	8	14	NET NO.	LTER # 5	LTER # 2	TOW NO. 1 OF 1
			METER NO.	08786		SEA (Conditions): Calm
TOWING (at depth)	1	02	FINAL	246481		(Circle one) Moderate
			INITIAL	196500		Rough
Total (ascend)	14	37	DIFF.	49981		WIND: 16 knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 7 down 1 Sup

OBSERVERS: CN

ANGLES	33		31		35	down 50	40		41	down 52	42		41	down 49	43
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
ANGLES		42	down 33	47		45	down 45	47		47	down 38	50	down 32	55	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS		1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	P (Q)		X			
FORMALIN & BORATE ADDED		CN	NET WASHING	none	rinsed	washed	
					X		
ALCOHOL ADDED		\	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station
COLLECTORS INITS.		CN		X			

REMARKS: flow meter free wheeled in the air
down at 5 meters/minute at 15 meters, 30 meters/minute after
up at 20 meters/minute

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	1	3	105	2011-6-25	0918	0941

TIME	Min.	Sec.		PORT	STB.	
SINKING (descend)	6 '	19 "	NET NO.	LTFR#5	LTFR#2	TOW TYPE: [illegible]
			METER NO.	08786	/	TOW NO. 1 OF 1
TOWING (at depth)	'	41 "	FINAL	288429	/	SEA (Conditions): (Circle one) **Calm** (circled) Moderate Rough
			INITIAL	246506	/	
Total (ascend)	15 '	39 "	DIFF.	41923	/	WIND: 20 knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 6 down 15 up

OBSERVERS: CN

ANGLES	69		61	down 69	53		48	down 69	45	40	36	down [illegible]	42		40
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160

ANGLES	down 68	40		41	down 60	41		38	down 61	42		48		49	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT		STB.						
No. OF JARS			1		NET CLOGGING	none or slight X	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P	Q	P	Q (circled)					
FORMALIN & BORATE ADDED			CN		NET WASHING	none	rinsed X	washed	
ALCOHOL ADDED			\						
COLLECTORS INITS.			CN		RIPS AND HOLES IN NET	none X	location	when mended: (Circle one)	Before station / After station

REMARKS: [illegible]

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	1	4	123	2011-6-26	0012	0034

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calbol
SINKING (descend)	6	24 "	NET NO.	LTER #5	LTER # 2	TOW NO. 1 OF 1
			METER NO.	08786		SEA (Conditions): (Circle one) Calm / Moderate / Rough
TOWING (at depth)		41 "	FINAL	341303		
			INITIAL	288447		
Total (ascend)	14	25 "	DIFF.	52856		WIND: 21 knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 8 down 15 up

OBSERVERS: CN

ANGLES	60	down 63	55	down 64	53		51	down 60	52		51	dan 61	52		45
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
ANGLES	down 55	46		44	down 58	45		49	down 55	50		50	down 50	48	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS		1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	P (Q)		X			
FORMALIN & BORATE ADDED		CN	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED		/			X		
COLLECTORS INITS.		CN	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station
				X			

REMARKS: Flow meter freewheeled in the air

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT)	
						BEGIN TOW	END TOW
CCE-P1106	MV	2	1	176	2011-06-27	17:32	17:55

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calbob 1	
SINKING (descend)	6	31 "	NET NO.	LTER #5	LTER #2	TOW NO. 1 OF 1	
			METER NO.	08786		SEA (Conditions): (Circle one)	Calm / Moderate / Rough
TOWING (at depth)		38 "	FINAL	383999			
			— INITIAL	341299			
Total (ascend)	14	35 "	DIFF.	47700		WIND: 17.4 knots	
			MESH SIZE	202 µm	202 µm		

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 2 down ^ 14 up

OBSERVERS: MDO

ANGLES				up 28°	up 35°	down 42°	up 42°		48°		50°	down 42°	51°		50°
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
ANGLES		50°		48°		48°			44°		47°		43°	45°	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT		STB.					
No. OF JARS			1					
SIZE OF JAR (Circle One)	P	Q	P	Q	NET CLOGGING	none or slight X	moderate	heavy	very heavy
FORMALIN & BORATE ADDED					NET WASHING	none	rinsed X	washed	
ALCOHOL ADDED									
COLLECTORS INITS.					RIPS AND HOLES IN NET	none X	location	when mended: (Circle one)	Before station / After station

REMARKS: wetted net before deployment; no flowmeter free wheels

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	2	2	183	2011-6-24	21:58	22:21

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: (a)bobl
SINKING (descend)	7	11 48"	NET NO.	LTHR #5	LTHR #2	TOW NO. 1 OF 1
			METER NO.	08780		SEA (Conditions): (Calm) Moderate Rough
TOWING (at depth)	0	30 47"	FINAL	430940		
			INITIAL	389012		
Total (ascend)	15	06 19"	DIFF.	41928		WIND: knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 15

OBSERVERS: CN

UP ANGLES	45		44		40		43		45		45		45		47	
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160	

UP ANGLES		46		48		47		48		42		37		40		
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10	

	PORT	STB.					
No. OF JARS		1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	(P) Q		X			
FORMALIN & BORATE ADDED		CN	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED		/			X		
COLLECTORS INITS.		CN	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station
				X			

REMARKS: wetted net before deployment — no flowmeter
free wheeling

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	2	3	198	2011-06-28	1019	1043

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calbobl
SINKING (descend)	7	16 "	NET NO.	LTER #5	LTER #2	TOW NO. 1 OF 1
			METER NO.	08786		SEA (Conditions): (Calm) Moderate Rough (Circle one)
TOWING (at depth)		30 "	FINAL	471822		
			INITIAL	430945		
Total (ascend)	15	20 "	DIFF.	40877		WIND: knots
			MESH SIZE	202 µM	202 µM	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 15

OBSERVERS: MDO

ANGLES	41		36		37		40		44		45		46		45	
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160	
ANGLES		45		40		42		43		46		46		42		
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10	

	PORT	STB.					
No. OF JARS	1	1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	(P) Q		X			
FORMALIN & BORATE ADDED		CN	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED					X		
COLLECTORS INITS.		CN	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station
				X			

REMARKS:

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT)	
						BEGIN TOW	END TOW
CCE-P1106	MV	2	4	207	2011-6-28	2055	2117

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calcofi
SINKING (descend)	6	38 "	NET NO.	LTER 5	LTER 2	TOW NO. 1 OF 1
			METER NO.	02786		SEA (Conditions): (Calm) Moderate Rough (Circle one)
TOWING (at depth)		40 "	FINAL	511397		
			INITIAL	471822		
Total (ascend)	14	08 "	DIFF.	39575		WIND: knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 5down 14up

OBSERVERS: CN

ANGLES	46		44	down 49	48				45	down 54	46		43	down 52	42
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160

ANGLES		41		39	down 50	42		46	down 49	44		41		39	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS			NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	P Q		X			
FORMALIN & BORATE ADDED			NET WASHING	none	rinsed	washed	
ALCOHOL ADDED					X		
COLLECTORS INITS.			RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station
				X			

REMARKS: up at 30meters/minute for first 60 meters

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT)	
						BEGIN TOW	END TOW
CCE-P1106	MV	3	1	247	2011-06-30	0926	0950

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Oblique
SINKING (descend)	7	07	NET NO.	LTR #5	LTR #2	TOW NO. 1 OF 1
			METER NO.	08786		SEA (Conditions): (Circle one) Calm / Moderate / Rough
TOWING (at depth)	0	31	FINAL	552283		
			INITIAL	511416		
Total (ascend)	15	29	DIFF.	40867		WIND: 22 knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 1 down 154

OBSERVERS: CN

ANGLES	33		36		40		41		46		47		43		45
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
ANGLES		41		42		45		48		50		35	down 35	36	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS		1	NET CLOGGING	none or slight X	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P / Q	P (Q)					
FORMALIN & BORATE ADDED		CN	NET WASHING	none	rinsed X	washed	
ALCOHOL ADDED		/					
COLLECTORS INITS.		CN	RIPS AND HOLES IN NET	none X	location	when mended: (Circle one)	Before station / After station

REMARKS: No freewheeling of flowmeter on way down

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	3	2	258	2011-6-30	21:25	2149

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calbobl
SINKING (descend)	7	44 34	NET NO.	LTER#5	LTER#2	TOW NO. 1 OF 1
			METER NO.	08786	/	SEA (Conditions): Calm
TOWING (at depth)		30	FINAL	595166	/	(Circle one) Moderate
			INITIAL	552231	/	Rough
Total (ascend)	15	47 09	DIFF.	42935	/	WIND: 25+ knots
			MESH SIZE	202TM	202TM	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 15

OBSERVERS:

UP ANGLES	40		41		38		42		45		42		39		43	
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160	
UP ANGLES		46		45		40		48		52		55		45		
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10	

	PORT	STB.					
No. OF JARS	/	1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	P (Q)					
FORMALIN & BORATE ADDED	/	CN	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED	/	/					
COLLECTORS INITS.	/	CN	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station

REMARKS:

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT)	
						BEGIN TOW	END TOW
CCE-P1106	MV	3	3	282	2011-07-01	09:38	10:07

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calbobl
SINKING (descend)	7	32"	NET NO.	LTER#5	LTER#2	TOW NO. 1 OF 1
			METER NO.	08786		SEA (Conditions): Calm
TOWING (at depth)		34"	FINAL	636631		(Circle one) Moderate
			INITIAL	595172		Rough
Total (ascend)	15	35"	DIFF.	41459		WIND: 22-25 knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 15

OBSERVERS:

ANGLES	40		42		43		40		40		47		43		43
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160

ANGLES		42		45		45		40		38		45		45	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS		1	NET CLOGGING	none or slight	(moderate)	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	P (Q)					
FORMALIN & BORATE ADDED		CN	NET WASHING	none	rinsed	(washed)	
ALCOHOL ADDED		✓					
COLLECTORS INITS.		CN	RIPS AND HOLES IN NET	(none)	location	when mended: (Circle one)	Before station / After station

REMARKS:

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	3	4	~~298~~ 293	2011 -7- 1	20:55	21:18

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calbob
SINKING (descend)	7	07 "	NET NO.	LTER #5	LTER #2	TOW NO. 1 OF 1
			METER NO.	08786		SEA (Conditions): (Calm) Moderate Rough
TOWING (at depth)		38 "	FINAL	235949		
			INITIAL	~~363658~~ 363661		
Total (ascend)	15	23 "	DIFF.	+27709		WIND: 15.5 knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 30 meters

TOTAL NO. OF ANGLES: 13

OBSERVERS: CN

ANGLES	40		35		38		40		40						45
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
ANGLES		45		41		40		45		43		45		40	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS		1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	P (Q)		X			
FORMALIN & BORATE ADDED		CN	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED		/			X		
COLLECTORS INITS.		CN	RIPS AND HOLES IN NET	none	location on seine & sled net	when mended: (Circle one)	Before station / After station

REMARKS: No sleeve/cod; first flow meter in air

for initial flowmeter → ☆ used final flowmeter value from previous tow (Bongo Tows Cycle 3 Occ 3)

for final flowmeter → ☆ used initial flowmeter value from next tow (Vertical Tows Upfront 1 Occ 1)

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	4	1	396	2011-07-07	10:03	10:31

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calbobi	
SINKING (descend)	6	37	NET NO.	LTER #5	LTER #2	TOW NO. 1 OF 1	
			METER NO.	08786		SEA (Conditions): (Circle one)	Calm
TOWING (at depth)	39		FINAL	76773			Moderate
			INITIAL	73553			Rough
Total (ascend)	16	01	DIFF.	36181		WIND:	knots
			MESH SIZE	202 µm	202 µm		

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 16

OBSERVERS:

ANGLES	45°		42°		39°		35°		33°		31°		28°		41°
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
ANGLES	42°		43°		45°		47°		45°		45°		51°		56°
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS		2	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	P (Q)					
FORMALIN & BORATE ADDED			NET WASHING	none	rinsed	washed	
ALCOHOL ADDED							
COLLECTORS INITS.			RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station

REMARKS:

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT)	
						BEGIN TOW	END TOW
CCE-P1106	MV	4	2	411	2011-7-07	21:39	22:02

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Oblique
SINKING (descend)	6	42 "	NET NO.	L16R→5	L14R→2	TOW NO. 1 OF 1
			METER NO.	58186		SEA (Conditions): Calm
TOWING (at depth)		36 "	FINAL	805798		(Circle one) Moderate
			INITIAL	767247		Rough
Total (ascend)	15	13 "	DIFF.	37951		WIND: 13 knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 15

OBSERVERS: CN

ANGLES	40			38	39		43		43		45			41	43
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
ANGLES		41		39		42		42		45		45		41	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS		1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	P G Q			X		
FORMALIN & BORATE ADDED		CN	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED		/			X		
COLLECTORS INITS.		CN	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station
				X			

REMARKS:

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	4	3	437	2011-07-08	0931	1056

24 0955 58

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calcob1
SINKING (descend)	7	16 "	NET NO.	LTER #3	LTER #2	TOW NO. 1 OF 1
			METER NO.	08726		SEA (Conditions): (Circle one) Calm / Moderate / Rough
TOWING (at depth)		44 "	FINAL	845455		
			INITIAL	806012		
Total (ascend)	16	58 "	DIFF.	39423		WIND: knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 15

OBSERVERS:

ANGLES	45		40		41		45		43		41		43		45	
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160	
ANGLES		40		42		45		46		42		38		39		
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10	

	PORT	STB.					
No. OF JARS		1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	P Q					
FORMALIN & BORATE ADDED		CN	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED		/					
COLLECTORS INITS.		CN	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station

REMARKS:

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	4	4	448	2011-7-8	2108	2131

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calbob
SINKING (descend)	6	43 "	NET NO.	LTER #5	LTER #2	TOW NO. 1 OF 1
			METER NO.	08786		SEA (Conditions): (Calm) Moderate Rough (Circle one)
TOWING (at depth)		36 "	FINAL	880522		
			INITIAL	845466		
Total (ascend)	15	50 "	DIFF.	35056		WIND: 16 knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 15

OBSERVERS: CN

ANGLES	28		35		40		38		38		39		41		43
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160

ANGLES		45		45		45		42		35		45		50	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS		1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	P Q G		X			
FORMALIN & BORATE ADDED		CN	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED					X		
COLLECTORS INITS.		CN	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station
				X			

REMARKS: Lost ~ 5-10 m³ of ~3' tow

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	5	1	480	2011-07-10	0944	1008

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calbobl
SINKING (descend)	7	09	NET NO.	LTER # 5	LTER # 2	TOW NO. 1 OF 1
			METER NO.	08786	/	SEA (Conditions): (Circle one) Calm
TOWING (at depth)	37		FINAL	126637	/	Moderate
			INITIAL	880521	/	Rough
Total (ascend)	17	23	DIFF.	46116		WIND: knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 15

OBSERVERS:

ANGLES	52		48		45		38		36		47		45		45
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
ANGLES		41		42		45		47		45		48		47	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS	/		NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P / Q	P Q					
FORMALIN & BORATE ADDED	/		NET WASHING	none	rinsed	washed	
ALCOHOL ADDED	/	/					
COLLECTORS INITS.	/		RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station

REMARKS:

Pyrosome colony in frozen side

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	5	2	494	2011 - 10	2120	2143

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calbobl
SINKING (descend)	6	50 "	NET NO.	LTFR#5	LTFR#2	TOW NO. 1 OF 1
			METER NO.	08786	/	SEA (Conditions): (Calm) Moderate Rough (Circle one)
TOWING (at depth)		38 "	FINAL	970615	/	
			INITIAL	928796	/	
Total (ascend)	15	35 "	DIFF.	41819	/	WIND: 23 knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 15

OBSERVERS: SW, FU

UP ANGLES	44		39		41			45	47		45		43			
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160	
UP ANGLES	48	50		50		50		45		35		39		46		
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10	

	PORT	STB.					
No. OF JARS	/	1	NET CLOGGING	none or slight X	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	(P) Q					
FORMALIN & BORATE ADDED		CN	NET WASHING	none	rinsed X	washed	
ALCOHOL ADDED		/					
COLLECTORS INITS.		CN	RIPS AND HOLES IN NET	none X	location	when mended: (Circle one) Before station / After station	

REMARKS:

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT)	
						BEGIN TOW	END TOW
CCE-P1106	MV	5	3	519	2011 -02- 11	0953	1018

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calcofi
SINKING (descend)	6	43 "	NET NO.	Net #5	Net #2	TOW NO. 1 OF 1
			METER NO.	08786		SEA (Conditions): (Circle one) Calm / Moderate / Rough
TOWING (at depth)		41 "	FINAL	013544		
			INITIAL	970635		
Total (ascend)	15	34 "	DIFF.			WIND: knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 14

OBSERVERS:

ANGLES	38				41		45		45		40		38		42
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160

ANGLES		46		46		41		38		38		40		40	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS		1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	(P) Q		X			
FORMALIN & BORATE ADDED		(N)	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED		/			X		
COLLECTORS INITS.		(N)	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station
				X			

REMARKS: Obtained initial value from Live Bongo Tow flowmeter

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	5	4	528	2011-07-11	21:08	2131

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calbobl
SINKING (descend)	6	37 "	NET NO.	LTER #5	LTER #2	TOW NO. 1 OF 1
			METER NO.	07726		SEA (Conditions): (Calm) Moderate Rough (Circle one)
TOWING (at depth)		34 "	FINAL	054545		
			INITIAL	013551		
Total (ascend)	15	33 "	DIFF.	40994		WIND: knots
			MESH SIZE	236 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 3 down 4 up

OBSERVERS: CN

ANGLES	37	down 45	39		47		43		48		42		42		
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
ANGLES	43	42		41	down 40			45		44		45	down 50	48	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS		1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	(P) Q		X			
FORMALIN & BORATE ADDED		CN	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED					X		
COLLECTORS INITS.		CN	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station
				X			

REMARKS:

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	6	1	555	2011-07-13	0853	0917

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calib
SINKING (descend)	7	35 "	NET NO.	LTER #5	LTER #2	TOW NO. 1 OF 1
			METER NO.			SEA (Conditions): (Circle one) Calm
TOWING (at depth)	0	37 "	FINAL	101674		Moderate
			INITIAL	054542	1	Rough
Total (ascend)	15	24 "	DIFF.	47132	1	WIND: knots
			MESH SIZE	202 um	335 um	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 13

OBSERVERS:

ANGLES	44		42		45		43		45		46				
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160
ANGLES		41		47		49		45		43		45		47	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS	1	1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	P Q		1			
FORMALIN & BORATE ADDED		N	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED					1		
COLLECTORS INITS.	1	CN	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station
				+			

REMARKS:

1 line on trawl wire 12:24

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	6	2	560	2011-7-13	2123	2147

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calbob
SINKING (descend)	6	50 "	NET NO.	LTR#5	LTR#4	TOW NO. 1 OF 1
			METER NO.	08786		SEA (Conditions): (Calm) Moderate Rough (Circle one)
TOWING (at depth)		41 "	FINAL	145162		
			INITIAL	101682		
Total (ascend)	16	06 "	DIFF.	43480		WIND: knots
			MESH SIZE	202µm	202µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 13

OBSERVERS: EU, SW

ANGLES	38		38			40	42		42		45				44	
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160	
ANGLES			42			38		42		47			48	48		
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10	

	PORT	STB.					
No. OF JARS		1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P (Q)	P (Q)					
FORMALIN & BORATE ADDED		(N)	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED		/					
COLLECTORS INITS.		(N)	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station

REMARKS:

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	6	3	582	2011-07-14	0945	1008
				581			

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calbob L
SINKING (descend)	6	37	NET NO.	LTER #5	LTER #2	TOW NO. 1 OF 1
			METER NO.	08786		SEA (Conditions): (Circle one) Calm / Moderate / Rough
TOWING (at depth)	0	37	FINAL	184782		
			INITIAL	145187		
Total (ascend)	15	22	DIFF.	39595		WIND: knots
			MESH SIZE	202µm	202µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 15

OBSERVERS:

ANGLES	35		36		42		45		45		49		50		45
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160

ANGLES		41		41		45		48		50		45		42	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS	1	1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	P Q					
FORMALIN & BORATE ADDED		(N)	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED		/					
COLLECTORS INITS.		(N)	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station

REMARKS:

NET TOW DATA SHEET

CRUISE	SHIP	CYCLE	ORDER OCCUPIED	EVENT # (Deployed)	DATE YR MO DY	HOUR (PDT) BEGIN TOW	HOUR (PDT) END TOW
CCE-P1106	MV	6	4	592	2011-7-14	2109	2132

2131 24

24

TIME	Min.	Sec.		PORT	STB.	TOW TYPE: Calcofi
SINKING (descend)	6	36 "	NET NO.	LTER #5	LTER #2	TOW NO. 1 OF 1
			METER NO.	08786		SEA (Conditions): (Circle one) Calm / Moderate / Rough
TOWING (at depth)		36 "	FINAL	2240670		
			INITIAL	2140346		
Total (ascend)	15	12 "	DIFF.	517706.5		WIND: knots
			MESH SIZE	202 µm	202 µm	

AMT. OF WIRE OUT: 300 meters

TOTAL NO. OF ANGLES: 14

OBSERVERS: SW, CN, EV

UP ANGLES		39		42			43		46		45		43		49
WIRE OUT	300	290	280	270	260	250	240	230	220	210	200	190	180	170	160

UP ANGLES		45		41		41		45		45		44		55	
WIRE OUT	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10

	PORT	STB.					
No. OF JARS		1	NET CLOGGING	none or slight	moderate	heavy	very heavy
SIZE OF JAR (Circle One)	P Q	(P) Q		X			
FORMALIN & BORATE ADDED		(N	NET WASHING	none	rinsed	washed	
ALCOHOL ADDED		/			X		
COLLECTORS INITS.		CN	RIPS AND HOLES IN NET	none	location	when mended: (Circle one)	Before station / After station
				X			

REMARKS: