

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

IOS 2017-41
SOG 2017-05

DATE:

From: JUNE 14, 2017

To:

VESSEL:

Nordic Queen

PROJECT(S):

Discovery Islands Purse Seine

Water Properties Group
Fisheries and Oceans Canada
Institute of Ocean Sciences
Ocean Sciences Division
North Saanich, BC, Canada

WaterProperties.ca

Captain: Harold Sewid First Officer: Jim Sewid

Second Officer: Norman Sewid Third Officer: Morton Sewid

Fishing Master: _____ Chief Engineer: _____

Mission Participants / Agencies:

**** Chief Scientist to complete section below OR cut and tape from cruise plan ****

1st Leg Scientific Personnel: Chief Scientist: Chris Neville

Name	Watch	Cabin	Name	Watch	Cabin
John Smith	0800	1A	Jane Doe	0900	2B
Robert Johnson	0700	3C	Mary White	0600	4D
Sarah Brown	0500	5E	David Green	0400	6F
Lisa Black	0300	7G	Michael Lee	0200	8H
James Wilson	0100	9I	Amanda Taylor	0000	10J

Yeonaha Jung

Julia Bradshaw

Lenora Turette

[illegible]

Figure 1: A 3D visualization of the 1000-dimensional data space. The plot shows a dense cloud of points, with a central region of higher density and a surrounding shell of lower density. The axes are labeled 'x1', 'x2', and 'x3'.

Figure 1 displays a 4x4 grid of scatter plots showing the relationship between the number of children (0-10) and the number of children in the household (0-10). The rows represent different countries (USA, Canada, UK, Australia) and the columns represent different years (1990, 1995, 2000, 2005). Each plot shows a positive correlation between the two variables, with the density of points increasing as the number of children increases.

Figure 1 consists of two panels. The top panel shows the evolution of the number of particles N over time t for various parameters. The bottom panel shows N vs t for different values of α and β .

The figure consists of four vertically stacked scatter plots, each representing a different time point or condition. Each plot has 'Number of Children' on the vertical axis (ranging from 0 to 10) and 'Number of Adults' on the horizontal axis (ranging from 0 to 10). The data points are represented by small black dots. In all four plots, there is a clear upward trend, indicating that as the number of adults increases, the number of children also tends to increase. The density and distribution of the points vary slightly across the four panels.

1. *What is the main purpose of this study?*
 2. *What are the research objectives?*
 3. *What is the significance of this study?*
 4. *What is the scope of the study?*
 5. *What are the limitations of the study?*
 6. *What is the methodology used in the study?*
 7. *What are the results of the study?*
 8. *What are the conclusions of the study?*
 9. *What are the implications of the study?*
 10. *What are the future research directions?*

2nd Leg Scientific Personnel: _____ Chief Scientist: _____

Name	Watch	Cabin	Name	Watch	Cabin
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[illegible]

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[illegible]

Figure 1. The effect of the concentration of the *Agrobacterium* strain on the transformation efficiency of *Agrobacterium* strain 104. The concentration of the *Agrobacterium* strain 104 was varied from 10⁶ to 10⁹ cells/ml. The transformation efficiency was determined by the number of transformants per 10⁶ cells of the *Agrobacterium* strain 104. The data are the mean $\pm$ SD of three independent experiments. The transformation efficiency was significantly higher at 10⁸ cells/ml than at 10⁶ and 10⁷ cells/ml ($P < 0.05$).

**** The following 3 pages are VERY IMPORTANT as they document equipment and settings used on board ****

These pages are to be completed by the CTD Technician setting up the equipment, the Watch Leader on board, and the Chief Scientist MUST verify that all relevant sections are completed prior to leaving the vessel. *Any mid-cruise changes to be noted by watch leader in the notes.*

Data logging computer: _____

Data acquisition program: _____

CTD deck unit make: Seabird model: 25 serial number: 2543784-0404

Primary CTD

Make: Seabird model: 25 serial number: 2543784-0404

Primary temperature serial number: 290464

Primary conductivity serial number: 041764

Secondary temperature serial number: _____

Secondary conductivity serial number: _____

Transmissometer: _____ Model: _____ s/n: _____

Transmissometer: _____ Model: _____ s/n: _____

Fluorometer: Model _____ Cable gain: _____ s/n: _____ P, S or NO pump?

Fluorometer: Model _____ Cable gain: _____ s/n: _____ P, S or NO pump?

Oxygen sensor: P Model: 43 s/n: 431176 P, S or NO pump?

PAR sensor: _____ Model: _____ s/n: _____ Surface PAR? Y / N

Other sensors: PH 18-I s/n: 190852 P, S or NO pump?

Other sensors: _____ s/n: _____ P, S or NO pump?

Other sensors: _____ s/n: _____ P, S or NO pump?

Other sensors: _____ s/n: _____ P, S or NO pump?

Secondary CTD

Make: _____ model: _____ serial number: _____

Primary temperature serial number: _____

Primary conductivity serial number: _____

Secondary temperature serial number: _____

Secondary conductivity serial number: _____

Transmissometer: _____ Model: _____ s/n: _____

Transmissometer: _____ Model: _____ s/n: _____

Fluorometer: Model _____ Cable gain: _____ s/n: _____ P, S or NO pump?

Fluorometer: Model _____ Cable gain: _____ s/n: _____ P, S or NO pump?

Oxygen sensor: _____ Model: _____ s/n: _____ P, S or NO pump?

PAR sensor: _____ Model: _____ s/n: _____ Surface PAR? Y / N

Other sensors: _____ s/n: _____ P, S or NO pump?

Other sensors: _____ s/n: _____ P, S or NO pump?

Other sensors: _____ s/n: _____ P, S or NO pump?

Other sensors: _____ s/n: _____ P, S or NO pump?

CTD calibration bottle location (height above CTD in metres): _____

This also includes the bottle location above the CTD on non-rosette casts (e.g., W.E. Ricker)



Scientific Equipment Used During Cruise

This sheet allows you to enter all of the equipment used while on board. Please use the separate CTD sheet for entry for SBE 9/16/19/25.

Other CTD units:

RBR Serial Number: Sensors:

Others:

Plankton Nets:

Bongo #1Frame Size: 60 cmMesh: 253 μmFlowmeter: 7182

Bongo #2Frame Size: Frame Size: Mesh: μmFlowmeter:

Frame Size: cmMesh: μmFlowmeter:

Frame Size: cmMesh: μmFlowmeter:

Multinet BIONESS Neuston Others:

Trawl Gear:

Midwater Trawls: SOG Highseas Pelagic Other:

Bottom Trawls: Atlantic Western IIA Yankee 36 Hard & Soft Bottom Other:

American Shrimp Trawl

Notes:

Trawl Doors: USA Jet Tyburon

Sounders : Wesmar 380 Others:

Acoustics:

Echosounder #1 Frequencies (KHz): 12 18 38 70 120 200

Others:

Echosounder #2 Frequencies (KHz): 12 18 38 70 120 200

Others:

Software & Notes:

Other Gear in Operation:

1.
2.
3.
4.
5.



DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month JUNE				Year 2017		Vessel Nordic Queen			Cruise ID 2017-41		SOG2017-05				
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Tms/Fl Cleaned	Comments
							Latitude	Longitude							
001	1	14	16:03	BE	SET		50° 18.322	125° 19.781	40.8		-			□□	BOTTOM - FA
002	↓	1	17:01		CTD		° .332	° .814	40.5	50 ^m	-		YJ	□□	
003	2	1	18:05		SET		° .319	° .804	40.5		-			□□	
004	↓	1	18:48		CTD		° .330	° .815	40.5	70 ^m	-		YJ	□□	
005	↓	1	19:06		NET		° .334	° .880	40.0	50	-		YJ	□□	3698-4034 FM Δ10°
006	3	1	20:01		SET		° .308	° .837	40.2		-			□□	
007	↓	1	20:45		CTD		° .328	° .818	39.5	60 ^m	-		YJ	□□	
008	4	1	22:00		SET		° .313	° .893	39.7		-			□□	
009	↓	1	22:48		CTD		° .329	° .818	39.5	60 ^m	-		YJ	□□	
010	↓	↓	22:56		NET		° .330	° .811	40.4	50	-		YJ	□□	4034-4362 FM
011	5	15	00:06		SET		° .324	° .819	40.8		-			□□	
012	↓	1	00:48		CTD		° .332	° .804	41.0	60 ^m	-		YJ	□□	
013	6	1	02:02		SET		° .317	° .825	41.5		-			□□	
014	↓	1	02:33		CTD		° .327	° .810	41.5	60 ^m	-		YJ	□□	
015	↓	1	02:42		NET		° .317	° .808	41.5	50	-		YJ	□□	FM 4362-4678
016	7	1	04:00		SET		° .332	° .810	41.2		-			□□	
017	↓	1	04:37		CTD		° .333	° .790	41.6	60 ^m	-		YJ	□□	
018	8	1	07:10		SET		° .318	° .780	41.7		-			□□	
019	↓	↓	07:56	↓	CTD		° .336	° .801	41.4	60	-		YJ	□□	

Event Type:

BOT = Bottle cast (no CTD)
CTD = Standalone CTD
ROS = CTD in Rosette
SET = Fish Set

LOOP = Sea Water Loop

MQR = Mooring
NET = Plankton Net Haul
DRF = Drifter

Bottle Firing Method:

US = Up / Stop (default)
UN = Up / No stop
DN = Down / No stop

Notes:

Time Code:

BE = Beginning Time of Cast
BO = Bottom Time of Cast
EN = End Time of Cast

CTD Transmissometer and Fluorometer to be cleaned before each cast - do not use Ammonia products

DE = Deployment Time
MR = Messenger Release Time
RE = Recover Mooring Time

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DAILY SCIENCE LOG

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Month JUN - JUL			Year 2017			Vessel Nordic Queen			Cruise ID 2017-41			SOG 2017-05			
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
020	8	15	08:03	BE	NET		50°18.306	125°19.891	40.1 ^{FA}	50 ^M	-		YJ	☐ ☐	FM 4678 - 4970
021	9	15	09:09		SET		° .342	° .816	39.2		-			☐ ☐	
022	10		11:55		SET		° .329	° .817	41.1		-			☐ ☐	
023	11		12:36		CTD		° .322	° .808	41.2	60	-		YJ	☐ ☐	
024	↓		12:53		NET		° .323	° .807	41.1	50	-		YJ	☐ ☐	FM 4970 - 5245
025	11		14:08		SET		° .331	° .815	41.1		-			☐ ☐	
026	1		14:53		CTD		° .337	° .805	40.7	60	-		YJ	☐ ☐	
027	↓	✓	15:02		NET		° .335	° .792	40.7	50	-		YJ	☐ ☐	FM 5245 - 5538
028	12				SET		° .	° .			-			☐ ☐	CS SKIPS EVENT/ST TO 030/14
029							° .	° .			-			☐ ☐	
030	14	JUL 12	20:05		SET		50°18.358	125°19.843	39.2	50	-			☐ ☐	
031	↓		20:46		CTD		° .334	° .804	39.0	60	-		YJ	☐ ☐	
032	↓		20:56		NET		° .307	° .845	39.4	50	-		↓	☐ ☐	FM 7780 - 8060
033	15		23:05		SET		° .336	° .811	40.7		-			☐ ☐	
034	↓		23:40		CTD		° .322	° .825	40.5	70	-		YJ	☐ ☐	
035	A		23:48		NET		° .304	° .864	40.4	50	-		↓	☐ ☐	FM 8060 - 8180
036	B	↓	23:55		NET		° .291	° .911	40.1	50	-		↓	☐ ☐	FM 8180 - 8280
037	16	13	02:01		SET		° .	° .	40.7		-			☐ ☐	POSITION NOT RECORDED
038	↓	↓	02:35	✓	CTD		° .336	° .823	40.8	70	-		YJ	☐ ☐	

Event Type:

BOT = Bottle cast (no CTD)
 CTD = Standalone CTD
 ROS = CTD in Rosette
 SET = Fish Set

LOOP = Sea Water Loop

MOR = Mooring
 NET = Plankton Net Haul
 DRF = Drifter

Bottle Firing Method:

US = Up / Stop (default)
 UN = Up / No stop
 DN = Down / No stop

Notes:

Time Code:

BE = Beginning Time of Cast
 BO = Bottom Time of Cast
 EN = End Time of Cast

CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

DE = Deployment Time
 MR = Messenger Release Time
 RE = Recover Mooring Time

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DAILY SCIENCE LOG

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Month JUL				Year 2017				Vessel NORDIC QUEEN				Cruise ID 2017-41				SCG2017-05
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments	
							Latitude	Longitude								
039	16	13	02:44	BE	NET		50° 18.302	125° 19.805	42.0	50	-		YJ	☐	FM 8280 - 8445	
040	17		05:02		SET		° .385	° .620	40.4		-			☐		
041			05:38		CTD		° .357	° .745	40.7	70	-		YJ	☐		
042	A		05:48		NET		° .331	° .769	41.7	50	-			☐	FM 8445 - 8470	
043	B		05:55		↓		° .384	° .837	41.7	↓	-			☐	FM 8470 - 8580	
044	18		06:08		SET		° .345	° .768	41.0		-			☐		
045	↓		06:41		CTD		° .325	° .820	40.2	60	-		YJ	☐		
046	19		08:10		SET		° .350	° .816	39.7		-			☐		
047	17		08:57		CTD		° .333	° .820	40.4	60	-		YJ	☐		
048	↓		09:02		NET		° .329	° .852	39.0	50	-		↓	☐	FM 8580 - 8888	
049	20		11:02		SET		° .335	° .815	41.1		-			☐		
050			11:41		CTD		° .318	° .816	41.1	60	-		YJ	☐		
051	A		11:52		NET		° .306	° .772	42.4	50	-			☐	FM 8888 - 8990	
052	B		11:58		↓		° .328	° .805	41.0	↓	-		↓	☐	FM 8990 - 9095	
053	21		14:05		SET		° .330	° .815	41.4		-			☐		
054	↓		14:42		CTD		° .340	° .804	40.8	60	-		YJ	☐		
055	↓		14:51		NET		° .313	° .847	41.0	50	-		↓	☐	FM 9095 - 9280	
056	22		17:02		SET		° .330	° .815	40.0		-			☐		
057	↓	↓	17:41	↓	CTD		° .333	° .797	40.1		-		YJ	☐		

Event Type:

BOT = Bottle cast (no CTD)
 CTD = Standalone CTD
 ROS = CTD in Rosette
 SET = Fish Set

LOOP = Sea Water Loop

MOR = Mooring
 NET = Plankton Net Haul
 DRF = Drifter

Bottle Firing Method:

US = Up / Stop (default)
 UN = Up / No stop
 DN = Down / No stop

Time Code:

BE = Beginning Time of Cast
 BO = Bottom Time of Cast
 EN = End Time of Cast

CTD Transmissometer and Fluorometer to be cleaned before each cast - do not use Ammonia products

DE = Deployment Time
 MR = Messenger Release Time
 RE = Recover Mooring Time

Notes:

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month JUL				Year 2017			Vessel NORDIC QUEEN			Cruise ID 2017-41			SOG 2017-05		
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
058	22 A	13	17:47		NET		50° 18.37	125° 19.800	40.5	50	-		YJ	☐	FM 9280-9595
059	↓ B	↓	17:53		↓		50° 18.305	125° 19.840	40.0	↓	-		↓	☐	FM 9395-9805
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	
SEPTEMBER			:				°	°			-			☐	
060	23	12	15:01		SET		50° 18.310	125° 19.865	41.1 FA		-		JB	☐	
061	↓	↓	15:45		CTD		50° 18.358	125° 19.974	40	60	-		JB	☐	FM 14975-15425
062	↓	↓	15:55		NET		50° 18.358	125° 19.974	40	60	-		JB	☐	FM 14975-15425
063	24	12	18:00		SET		50° 18.325	125° 19.828	41.5		-			☐	
064	↓	↓	18:30		CTD		50° 18.357	125° 19.827	40.2	60	-		JB	☐	
065	↓	↓	18:37		NET		50° 18.360	125° 19.744	41.4	60	-		JB	☐	FM 15475-15740
066	25	12	:		SET		50° 18.330	125° 19.826	41.7		-			☐	
067	↓	↓	21:35		CTD		50° 18.311	125° 19.863	40.7	60	-		JB	☐	
068	↓	↓	:		NET		50° 18.311	125° 19.863	40	60	-		JB	☐	FM 15740-16180
069	26	13	00:00		SET		50° 18.314	125° 19.898	40.5		-			☐	
070	↓	↓	00:37		CTD		50° 18.330	125° 19.823	40.1	60	-		JB	☐	
071	↓	↓	00:41		NET		50° 18.345	125° 19.820	40.1	60	-		JB	☐	16180-16675

Event Type:

BOT = Bottle cast (no CTD)
 CTD = Standalone CTD
 ROS = CTD in Rosette
 SET = Fish Set

LOOP = Sea Water Loop
 MOR = Mooring
 NET = Plankton Net Haul
 DRF = Drifter
 =

Bottle Firing Method:

US = Up / Stop (default)
 UN = Up / No stop
 DN = Down / No stop

Notes:

Time Code:

BE = Beginning Time of Cast
 BO = Bottom Time of Cast
 EN = End Time of Cast
 DE = Deployment Time
 MR = Messenger Release Time
 RE = Recover Mooring Time

CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

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Month September				Year 2017		Vessel Nordic Queen				Cruise ID 2017-41		SOG 2017-05			
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
072	27	13	03:01		SET		50°18.363	125°19.867	39.1		-		JB	☐	FM 16675-17015
073	↓	↓	03:31		CTD		50°18.333	125°19.805	40	60	-		JB	☐	↓
074	↓	↓	03:40		NET		50°18.333	125°19.805	40	60	-		JB	☐	↓
075	28	13	06:01		SET		50°18.327	125°19.829	40.5		-			☐	spilled a tiny bit opening the cod end
076	↓	↓	06:34		CTD		50°18.345	125°19.796	40.5	60	-		JB	☐	
077	↓	↓	06:41		NET		50°18.345	125°19.796	40.5	60	-		JB	☐	FM 17015-17360
078	29	13	08:57		SET		50°18.351	125°19.886	41.4		-			☐	
079	↓	↓	09:21		CTD		50°18.333	125°19.805	41.0	60	-		JB	☐	
080	↓	↓	09:30		NET		50°18.333	125°19.805	41.0	60	-		JB	☐	FM 17360-17810
081	30	13	12:00		SET		50°18.318	125°19.812	40.9		-			☐	
082	↓	↓	12:27		CTD		50°18.329	125°19.822	40.7	60	-		JB	☐	
083	↓	↓	12:36		NET		50°18.329	125°19.822	40.7	60	-		JB	☐	FM 17810-18230
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	

Event Type:

BOT = Bottle cast (no CTD)
 CTD = Standalone CTD
 ROS = CTD In Rosette
 SET = Fish Set

LOOP = Sea Water Loop
 MOR = Mooring
 NET = Plankton Net Haul
 DRF = Drifter

Bottle Firing Method:

US = Up / Stop (default)
 UN = Up / No stop
 DN = Down / No stop

Notes:

Time Code:

BE = Beginning Time of Cast
 BO = Bottom Time of Cast
 EN = End Time of Cast

CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

DE = Deployment Time
 MR = Messenger Release Time
 RE = Recover Mooring Time

Produced by the Water Properties Group, IOS

WaterProperties.ca
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