DAILY SCIENCE LOG BOOK

MISSION NUMBER: BCSI 2021-034

DATE: From: Oct 4-2021 To: Oct 17, 2021

VESSEL: F.V. Nordic Pearl

PROJECT(S): BCSI – Jackie King

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

Captain: Joe Greene First Officer: Devon Greene

Second Officer: Terry Mosher Third Officer: Daniel Kamban

Fishing Master: Joe Greene Chief Engineer: Marlon Jacinto

Cook James Mateer Deckhand Jason Wilson

Mission Participants / Agencies:

Fisheries + Oceans

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

1st Leg Scientific Personnel: Chief Scientist: ERICA ANDERSON

Name	Watch	Cabin	Name	Watch	Cabin
Cindy Wright					
Tyler Zubkowski					
Amy Tabata					
James Mortimer					

2nd Leg Scientific Personnel: Chief Scientist:

Name	Watch	Cabin	Name	Watch	Cabin

**** 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: 333

Data acquisition program: N/A

CTD deck unit make: N/A model: _____ serial number: _____

Primary CTD same configuration as Neville.

Make: SBE model: 25 serial number: 456

Primary temperature serial number: 4C = 043500

~~Primary conductivity serial~~ number: _____

Secondary temperature serial number: Pump 290573

~~Secondary conductivity serial number:~~ 3F = 035130

~~Transmissometer:~~ _____ Model: _____ s/n: _____

~~Transmissometer:~~ _____ Model: _____ s/n: _____

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

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

Oxygen sensor: SBE Model: 43 s/n: 3234 **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?

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)

Rosette Setup:
Number of bottles: N/A ① Niskin = RBRon niskens=
Manufacturer: _____
Volume of bottles (litres): _____

Winches:
1. Make: _____ Model: _____ Serial #: _____ Used for: _____
2. Make: _____ Model: _____ Serial #: _____ Used for: _____
3. Make: _____ Model: _____ Serial #: _____ Used for: _____

Comments on performance during cruise (comments should also be reflected in the post-cruise report):
_____
_____
_____

Salinometer:
Make: _____ Model: _____ Serial Number: _____
Comments on performance during cruise (comments should also be reflected in the post-cruise report):
_____

Oxygen Kit(s):
Make: _____ Model: _____ Kit Number: _____
Make: _____ Model: _____ Kit Number: _____
Comments on performance during cruise (comments should also be reflected in the post-cruise report):
_____
_____

Thermosalinograph System (SBE21):
Program: _____ Version: _____
Sampling interval (seconds): _____
Fluorometer sensor serial number: _____
Comments on performance during cruise (comments should also be reflected in the post-cruise report):
_____

ADCP Setup:
Computer time zone: _____
Sampling interval (sec): _____
Bin Length: (2^x): _____
Pulse Length: _____
Buffer (bytes): _____
Gyro Offset: _____
User Exits: Name: _____ Exit points: _____
Name: _____ Exit points: _____
Name: _____ Exit points: _____
Work File: _____
Comments on performance during cruise (comments should also be reflected in the post-cruise report):
_____
_____

CTD Test Cast Information

Test Cast along side? Yes (No)
Comments _____ was used in Gaultier - Newell surveys previous

Test Cast in Saanich Inlet or other location? Yes (No)
Comments _____

CTD pressure reading on deck (db), before cast: _____ after cast: _____ will be available @ each cast.

Pumps working? (Yes (0011)) No (0010)

Secondary Temp – Primary Temp: _____
(Average from the mixed region)

Secondary Salinity – Primary Salinity: _____
(Average from the mixed region)

Additional Comments:
_____
_____
_____
_____

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: standard.

Bongo #1 ✓	Frame Size: _____cm	Mesh: 250 µm	Flowmeter: 6069.
Bongo #2	Frame Size: _____cm	Mesh: _____ µm	Flowmeter: _____
_____	Frame Size: _____cm	Mesh: _____ µm	Flowmeter: _____
_____	Frame Size: _____cm	Mesh: _____ µm	Flowmeter: _____

Multinet ☐ BIONESS ☐ Neuston ☐ Others:
_____

RBR on net =
_____

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. _____

NOTE

Fish survey cruises do not used standard station names but use initials of region then a sequential number. so these I.D are not compatible with standard water property station I.Ds

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Nordic Pearl **Cruise ID** 2021-034 Page 1 of

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
001	QCST01	05	14:39	BE	CTD		50° 40.673	126° 52.431	184		01-01	1	EA	☑ ☐	
			14:43	BO			50° 40.677	126° 52.471	184	174	-			☐ ☐	
			14:47	EN			50° 40.685	126° 52.507	184		-			☐ ☐	
002	QCST01	05	15:01	BE	NET		50° 40.709	126° 52.648	184		-			☐ ☐	Nisken to 10m
			15:07	BO			50° 40.715	126° 52.699	184	174	-			☐ ☐	
			15:10	EN			50° 40.718	126° 52.731	183		-			☐ ☐	
003	QCST01	05	15:49	BE	SET		50° 40.263	126° 52.024	188	0	-			☐ ☐	
004	QCST02	05	18:24	BE	SET		50° 42.255	127° 02.279	172	15	-			☐ ☐	
005	QCST03	05	19:56	BE	CTD		50° 45.956	127° 16.657	195		02-02		EA	☑ ☐	messenger trip=
			20:00	BO			50° 45.916	127° 16.638	221	185	-			☑ ☐	20:07
			20:03	EN			50° 45.872	127° 16.613	224		-			☐ ☐	Nisken to 10m
006		05	20:09	BE	NET		50° 45.778	127° 16.547	245		-			☐ ☐	
			20:16	BO			50° 45.653	127° 16.518	243	235	-			☐ ☐	
			20:20	EN			50° 45.660	127° 16.504	244		-			☐ ☐	
007		05	21:04	BE	SET		50° 44.807	127° 17.212	231	15	-			☐ ☐	
008		05	17:23	BE	SET		50° 49.600	127° 25.806	217	0	-			☐ ☐	
009	TO1	06	14:40	BE	CTD		51° 12.233	128° 28.435	192		03-03	1	EA	☑ ☐	Messenger time:
			14:43	BO			51° 12.254	128° 28.370		182	-			☐ ☐	1449
			14:46	EN			51° 12.267	128° 28.332			-			☐ ☐	

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
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

Notes: _____

① after CTD is aboard - go to port side to do 10m Niskin on rope. This may take a few minutes. There is an RBR on the Niskin.

Cast 01 = messenger drop time = ~~2759~~ 1459 UTC
- no dup on chlora

Cast 005 = dups on Chl + Nuts

NOTE a few casts were lost in download as it initlogged without confirmation
- see table

MT = messenger time on Niskin
wristwatches may have varied

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Nordic Pearl **Cruise ID** 2021-034

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
010	T01	6	14:52	BE	NET		51 ° 12.294	128° 28.250	190		-			☑ ☐	
			14:55	BO	|		51 °12.311	128° 28.220		175	-			☐ ☐	
			14:59	EN	|		51 ° 12.324	128° 28.184			-			☐ ☐	
011	T01	6	15:25	BE	SET		51 ° 12.313	128° 28.354	192	0	-			☐ ☐	
012	T02	6	16:54	BE	SET		51 ° 9.141	128° 34.950	151	15	-			☐ ☐	
013	T03	6	18:13	BE	CTD		51 ° 4.840	128° 43.019	63		-			☑ ☐	Messenger time = 1811
			18:14	BO	|		51 ° 4.837	128° 42.969		52	-			☐ ☐	
			18:15	EN	|		51 ° 4.835	128 ° 42.918	64		-			☐ ☐	
014	T03	6	18:20	BE	NET		51 ° 4.847	128° 42.693	64		-			☐ ☐	
			18:22	BO	|		51 ° 4.848	128 ° 42.637	64	52	-			☐ ☐	
			18:23	EN	|		51 ° 4.850	128° 42.593	65		-			☐ ☐	
015	T03	6	18:49	BE	SET		51 ° 4.493	128° 42.929	66	0	-			☐ ☐	
016	T04	6	20:16	BE	SET		51 ° 1.047	129 ° 51.124	60	0	-			☐ ☐	
017	T05	6	21:36	BE	SET		50 ° 57.691	128° 59.199	69	0	-			☐ ☐	
018	T06	6	22:38	BE	CTD		50 °54.506	129° 6.676	67		-			☐ ☐	
			22:39	BO	|		50 ° 54.491	129° 6.683		50	-			☐ ☐	
			22:40	EN	|		50 °54.472	129 ° 06.696			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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
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

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Nordic Pearl **Cruise ID** 2021-034

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
D19	TO6	6	22:47	BE	NET		50°54.366	129°06.776	64		-			☐☐	
			22:48	BO	|		50°54.340	129°6.797		50?	-			☐☐	
			22:49	EN	⊥		50°54.325	129°6.814	63		-			☐☐	
D20	TO6	6	23:14	BE	SET		50°53.507	129°10.007	55	0	-			☐☐	
D21	VI01	7	14:36	BE	CTD		50°33.074	129°23.527	139		06-06	1	EA	☑☐	Messenger time =
			14:39	BO	|		50°33.092	129°23.532		130	-			☐☐	1445
			14:41	EN	⊥		50°33.106	129°23.539	138		-			☐☐	
D22	VI01	7	14:48	BE	NET		50°33.158	129°23.594	138		-			☐☐	
			14:50	BO	|		50°33.174	129°23.611		129	-			☐☐	
			14:52	EN	⊥		50°33.190	129°23.625	138		-			☐☐	
D23	VI01	7	15:12	BE	SET		50°33.038	129°23.316	136	15	-			☐☐	
D24	VI02	7	16:44	BE	SET		50°28.116	129°13.376	78	0	-			☐☐	
D25	VI03	7	18:01	BE	CTD		50°20.909	128°10.401	147		07-07	1	EA	☑☐	
			18:03	BO	|		50°20.909	129°10.401	148	140	-			☐☐	
			18:05	EN	⊥		50°21.023	129°10.430	146		-			☐☐	
D26	VI03	7	18:10	BE	NET		50°21.101	128°10.453	145	135	-			☐☐	MT = 1809
			18:13	BO	|		50°21.149	129°10.462	145	135	-			☐☐	
			18:15	EN	⊥		50°21.191	129°10.470	144		-			☐☐	
D27	VI03	7	18:36	BE	SET		50°21.425	129°10.052	139		-			☐☐	

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
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

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Nordic Pearl **Cruise ID** 2021

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
D28	QS01	7	21:23	BE	CTD		50°29.924	127°44.011	117		08-08	1	EA	☑ ☐	MT=2145
			21:25	BO	↓		50°29.928	127°44.027	117	110	-			☐ ☐	
			21:27	EN	↓		50°29.932	127°44.041	117		-			☐ ☐	
D29	QS01	7	21:32	BE	NET		50°29.936	127°44.065	117		-			☐ ☐	
			21:34	BO	↓		50°29.936	127°44.078	117	105	-			☐ ☐	
			21:36	EN	↓		50°29.934	127°44.090	117		-			☐ ☐	
D30	QS01	7	21:58	BE	SET		50°30.055	127°43.529	115	15	-			☐ ☐	
D31	QS02	8	00:03	BE	SET		50°27.706	127°32.415	187	0	-			☐ ☐	
D32	QS03	8	14:39	BE	CTD		50°24.262	128°2.593	74		09-09	1	EA	☑ ☐	MT=1445
	↓		14:41	BO	↓		50°50.230	128°2.640	73	65	-			☐ ☐	
	↓		14:42	EN	↓		50°24.305	128°02.556	71		-			☐ ☐	
D33	QS03	8	14:48	BE	NET		50°24.243	128°02.615	75		-			☐ ☐	
	↓		14:49	BO	↓		50°24.262	128°2.586	73	65	-			☐ ☐	
	↓		14:51	EN	↓		50°24.276	128°2.568	74		-			☐ ☐	
D34	QS03	8	15:17	BE	SET		50°23.765	128°2.755	75		-			☐ ☐	
D35	BP01	9	17:18	BE	CTD		50°11.363	127°59.231	59		-			☐ ☐	
			17:18	BO	↓		50°11.385	127°59.285	60	50	10-10	1	EA	☑ ☐	MT=1722
			17:19	EN	↓		50°11.404	127°59.289	62		-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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
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

Notes: _____

- repositioned slightly after CTD but before MSTeW

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October | **Year** 2021 | **Vessel** Nordic Pearl | **Cruise ID** 2021-034

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
036	BP01	8	17:25	BE	NET		50° 11 .507	127° 59 .319	71		-			☐☐	
			17:26	BO	↓		50° 11 .531	127° 59 .325	72	60	-			☐☐	
			17:27	EN	↓		50° 11 .554	127° 59 .327	71		-			☐☐	
037	BP01	8	18:48	BE	SET		50° 11 .611	127° 59 .209	70	0	11 -11	1	EA	☑☐	MT = 1456
038	BP02	9	14:46	BE	CTD		50° 1 .174	127° 50 .382	306		-			☐☐	
			14:50	BO	↓		50° 1 .245	127° 50 .452	234	200	-			☐☐	
			14:53	EN	↓		50° 01 .328	125° 50 .514	174		-			☐☐	
039	BP02	9	15:04	BE	NET		50° 00 .930	127° 50 .389	437		-			☐☐	
			15:09	BO	↓		50° 01 .013	127° 50 .463	320	250	-			☐☐	
			15:12	EN	↓		50° 01 .054	127° 50 .536	277		-			☐☐	
040	BP02	9	15:35	BE	SET		50° 1 .123	127° 50 .258	313	15	-			☐☐	
041	KS01	9	19:22	BE	CTD		49° 58 .775	127° 15 .212	148		-			☐☐	
			19:22	BO	↓		49° 58 .820	127° 15 .187	147	138	12 -12	1	EA	☑☐	MT = 1927
			19:25	EN	↓		49° 58 .873	127° 15 .131	147		-			☐☐	
042	KS01	9	19:29	BE	NET		49° 58 .976	127° 15 .023	146		-			☐☐	
			19:32	BO	↓		49° 59 .023	127° 14 .978	144	135	-			☐☐	
			19:35	EN	↓		49° 59 .080	127° 14 .919	141		-			☐☐	
043	KS01	9	19:53	BE	SET		49° 59 .201	127° 14 .383	143		-			☐☐	
			:				° .	° .			-			☐☐	

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
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

Notes: _____

Event 38 During cast swallowed up quickly. After picker we repositioned into deeper water for the nets

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Nordic Pearl **Cruise ID** 2021-034

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
D44	KSO2	9	21:14	BE	CTD		50° 5.885	127 15.316	126.		13 - B	1	EA	☑☐	MT = 21:20
			21:16	BO	↓		50° 5.887	127° 15.307	130	115	-			☐☐	
			21:18	EN	↓		50° 5.890	127 15.298	130.		-			☐☐	
D45	KSO2	9	21:22	BE	NET		50° 5.895	127° 15.280	130		-			☐☐	
			21:24	BO	↓		50° 5.899	127° 15.271	138	120	-			☐☐	
			21:26	EN	↓		50° 5.899	127° 15.261	138		-			☐☐	
D46	KSO2	9	21:49	BE	SET		50° 6.068	127° 14.864	121	0	-			☐☐	aborted.
D47	KSO2	9	22:30	BE	SET		50° 5.979	127° 14.866	121	0	-			☐☐	
D48	EIO1	10	14:44	BE	SET		49° 55.238	126° 55.694	274	0	-			☐☐	
D49	EIO2	10	15:40	BE	CTD		49° 51.612	126° 52.635	233		14 - 14	EA		☑☐	MT = 1551
			15:44	BO	↓		49° 51.605	126° 52.674	231	223	-			☐☐	
			15:48	EN	↓		49° 51.602	126° 52.714	230		-			☐☐	
D50	EIO2	10	15:53	BE	NET		49° 51.599	126° 52.761	229		-			☐☐	
			15:57	BO	↓		49° 51.599	126° 52.800	228	220	-			☐☐	
			16:01	EN	↓		49° 51.597	126° 52.843	226		-			☐☐	
D51	EIO2	10	16:21	BE	SET		49° 51.893	126° 52.387	156	15	-			☐☐	
D52	EIO3	10	17:14	BE	CTD		49° 54.292	126° 47.489	217		15 - 15	EA		☑☐	MT = 1723
			17:17	BO	↓		49° 54.310	126° 47.486	217	210	-			☐☐	Dups on both.
			17:21	EN	↓		49° 54.317	126° 47.484	216		-			☐☐	

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
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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 20 April 2016

This page is for any notes or observations

Event 046 - aborted tow earlier since not fouled on sensor

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Nordic Pearl **Cruise ID** 2021-034

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
053	EIO3	10	17:25	BE	NET		49°54.323	126°47.486	217		-			☐☐	
			17:29	BO	|		49°54.326	126°47.485	216	205	-			☐☐	
			17:32	EN	|		49°54.327	126°47.482	216		-			☐☐	
054	EIO3	10	18:02	BE	SET		49°55.340	126°47.839	220		-			☐☐	
055	NS01	10	20:31	BE	SET		49°39.761	126°36.135	158.	0	-			☐☐	
056	NS02	10	21:34	BE	SET		49°41.348	126°32.926	205	0	-			☐☐	
057	NS03	10	22:40	BE	CTD		49°39.484	126°27.777	190		116 - 116	1	EA	☑☐	MT = 2248
[illegible]	NS01	10	22:43	BO	MT		49°39.486	126°27.751	190	180	-			☐☐	
			22:46	EN	|		49°39.488	126°27.723	190		-			☐☐	
058	NS03	10	22:50	BE	NET		49°39.484	126°27.689.	190		-			☐☐	
			22:53	BO	|		49°39.480	126°27.660	190	180	-			☐☐	
			22:56	EN	|		49°39.483	126°27.634	190		-			☐☐	
059	NS03	10	23:16	BE	SET		49 38.954	126°28.732	248	15	-			☐☐	
060	NS04	11	14:32	BE	CTD		49°35.501	126°35.391	96		17 - 17	1	EA	☑☐	
			14:33	BO	|		49°35.484	126°35.397	94	85	-			☐☐	MT = 1457
			14:35	EN	|		49°35.466	126°35.405	93		-			☐☐	
061	NS04	11	14:39	BE	NET		49°35.418	126°35.441	93		-			☐☐	
			14:40	BO	|		49°35.402	126°35.450	92	80	-			☐☐	
			14:32	EN	|		49°35.379	126°35.462	92		-			☐☐	

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
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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 20 April 2016

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Nordic Pearl **Cruise ID** 2021-034

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
062	NS04	11	15:02	BE	SET		49° 35.504	126° 35.888	105	15	-			☐☐	
063	NS05	11	16:13	BE	SET		49° 31.884	126° 40.480	45	0	-			☐☐	
064	NS06	11	17:38	BE	SET		49° 29.738	126° 46.479	52.	0	-			☐☐	
065	VI04	11	18:38	BE	CTD		49° 24.941	126° 46.762	76		18 - 18	1	EA	☑☐	MT = 1844
			18:40	BO	|		49° 24.941	126° 46.731	76.	63	-			☐☐	
			18:41	EN	|		49° 24.939	126° 46.694	74		-			☐☐	
066	VI04	11	18:46	BE	NET		49° 24.924	126° 46.560	75		-			☐☐	
			18:47	BO	|		49° 24.920	126° 46.532	73	62	-			☐☐	
			18:48	EN	|		49° 24.915	126° 46.513	74		-			☐☐	
067	VI04	11	19:11	BE	SET		49° 24.445	126° 46.330	78	0	-			☐☐	
068	VI05	11	20:13	BE	SET		49° 21.370	126° 43.654	89	15	-			☐☐	
069	CS01	11	22:27	BE	CTD		49° 13.595	126° 18.476	41		19 - 19	1	EA	☑☐	MT = 2231
			22:27	BO	|		49° 13.598	126° 18.468	41	30	-			☐☐	
			22:28	EN	|		49° 13.601	126° 18.456	41		-			☐☐	
070	CS01	11	22:56	BE	SET		49° 12.673	126° 17.492	52	0	-			☐☐	
071	CS02	12	14:51	BE	SET		49° 29.405	126° 17.213	109	0	-			☐☐	
072	CS03	12	16:03	BE	CTD		49° 25.066	126° 14.672	65		20 - 20	1	EA	☑☐	Drops on both
			16:05	BO	|		49° 25.075	126° 14.669	65	55	-			☐☐	MT = 1637.
			16:06	EN	|		49° 25.082	126° 14.664	65		-			☐☐	

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
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

Notes: _____

This page is for any notes or observations

→ no Bonded on CSO1 - not repair still curing

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Nordic Pearl **Cruise ID** 2021-034

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
073	CS03	12	16:10	BE	NET		49° 25.114	126° 14.636	65		-			☐☐	
			16:12	BO	⊥		49° 25.119	126° 14.627	65	55	-			☐☐	
			16:13	EN	⊥		49° 25.121	126° 14.619	65		-			☐☐	
074	CS04	12	17:01	BE	CTD		49° 25.090	126° 7.523	157		21-21	1	GA	☑☐	MT = 1708
			17:04	BO	⊥		49° 25.090	126° 7.534	157	145	-			☐☐	
			17:06	EN	⊥		49° 25.088	126° 07.559	157		-			☐☐	
075	CS04	12	17:10	BE	NET		49° 25.086	126° 07.572	158		-			☐☐	
			17:13	BO	⊥		49° 25.087	126° 7.608	157	148	-			☐☐	
			17:15	EN	⊥		49° 25.090	126° 7.624	157		-			☐☐	
076	CS04	12	17:38	BE	SET		49° 25.250	126° 6.871	150	0	-			☐☐	
077	CS05	12	19:48	BE	SET		49° 22.193	126° 4.357	109	0	-			☐☐	
078	CS06	12	21:24	BE	CTD		49° 22.607	125° 56.589	137		22-22	1	GA	☑☐	MT 2131
			21:27	BO	⊥		49° 22.680	125° 56.602	136	125	-			☐☐	
			21:29	EN	⊥		49° 22.651	125° 56.619	136		-			☐☐	
079	CS06	12	21:33	BE	NET		49° 22.686	125° 56.636	136		-			☐☐	
			21:35	BO	⊥		49° 22.702	125° 56.648	135	125	-			☐☐	
			21:37	EN	⊥		49° 22.709	125° 56.666	135		-			☐☐	
080	CS06	12	21:55	BE	SET		49° 22.449	125° 56.667	138	15	-			☐☐	
			:				° .	° .			-			☐☐	

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
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

Notes: _____

Event # 72 + 73 have no associated trawl due to commercial traps in area.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Nordic Pearl **Cruise ID** 2021-034

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
081	CS07	13	14:31	BE	CTD		49°7.015	126°15.050	67		23-23	1	EA	☑☐	MT = 1437
			14:32	BO	|		49°7.030	126°15.049	67	55	-			☐☐	
			14:34	EN	|		49°07.054	126°15.052	67		-			☐☐	
082	CS07	13	14:38	BE	NET		49°7.117	126°15.063	67		-			☐☐	
			14:39	BO	|		49°7.128	126°15.064	70	55	-			☐☐	
			14:41	EN	|		49°7.136	126°15.069	67		-			☐☐	
083	CS07	13	15:04	BE	SET		49°6.933	126°15.088	66	0	-			☐☐	
084	CS08	13	16:18	BE	SET		49°2.435	126°9.431	69	0	-			☐☐	
085	CS09	13	17:15	BE	CTD		48°58.815	126°4.710	61		24-24	1	EA	☑☐	MT 1020
			17:16	BO	|		48°58.821	126°4.714	61	50	-			☐☐	
			17:17	EN	|		48°58.826	126°4.720	60		-			☐☐	
086	CS09	13	17:21	BE	NET		48°58.848	126°4.751	61		-			☐☐	
			17:22	BO	|		48°58.857	126°4.757	60	50	-			☐☐	
			17:23	EN	|		48°58.862	126°4.758	60		-			☐☐	
087	CS09	13	17:42	BE	SET		48°58.657	126°4.491	62	0	-			☐☐	
088	VI06	13	19:46	BE	SET		48°55.403	125°45.657	97	15	-			☐☐	
089	VI07	13	20:55	BE	CTD		48°54.729	125°35.705	94		25-25	1	EA	☑☐	Dups on both
			20:56	BO	|		48°54.732	125°35.721	95	85	-			☐☐	MT = 2100
			20:58	EN	|		48°54.734	125°35.732	95		-			☐☐	

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
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

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Nordic Pearl **Cruise ID** 2021-034

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
090	VIO7	13	21:02	BE	NET		48°54.742	125°35.766	95		-			☐☐	
			21:04	BO			48°54.752	125°35.800	95	85	-			☐☐	
			21:06	EN			48°54.752	125°35.802	95		-			☐☐	
091	VIO7	13	21:30	BE	SET		48°54.590	125°35.091	94	15	-			☐☐	
092	BS01	14	14:28	BE	CTD		48°57.355	125°7.226	91		26-26	1	EA	☑☐	MT=1435
			14:30	BO	|		48°57.348	125°7.227	90	81	-			☐☐	
			14:31	EN	|		48°57.343	125°7.226	91		-			☐☐	
093	BS01	14	14:36	BE	NET		48°57.332	125°07.233	90		-			☐☐	
			14:38	BO	|		48°57.329	125°7.236	90	80	-			☐☐	
			14:40	EN	|		48°57.326	125°7.238	90		-			☐☐	
094	BS01	14	15:09	BE	SET		48°56.819	125°7.914	85	0	-			☐☐	
095	BS02	14	16:25	BE	SET		48°53.611	125°13.258	94	0	-			☐☐	
096	BO3	14	17:33	BE	CTD		48°48.069	125°19.023	82		27-27	1	EA	☑☐	MT 1738
			17:34	BO	|		48°48.075	125°19.024	81	72	-			☐☐	
			17:36	EN	|		48°48.084	125°19.021	82		-			☐☐	
097	BS03	14	17:40	BE	NET		48°48.099	125°18.995	81		-			☐☐	
			17:41	BO	|		48°48.103	125°18.985	82	70	-			☐☐	
			17:43	EN	|		48°48.105	125°18.978	82		-			☐☐	
098	BS03	14	:	BE	SET		° .	° .		0	-			☐☐	

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
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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 20 April 2016

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Nordic Pearl **Cruise ID** 2021-034

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
099	BS04	14	19:26	BE	SET		48° 45.246	125° 21.848	94	15	-			☐☐	
100	BS05	14	20:43	BE	SET		48° 41.264	125° 29.954	111	15	-			☐☐	aborted *
101	BS05	14	21:37	BE	SET		48° 41.358	125° 30.162	166	15	-			☐☐	
102	BS06	14	22:43	BE	CTD		48° 37.352	125° 35.761	122		28-28	1	EA	☑☐	MT 2249
			22:45	BO	|		48° 37.359	125° 35.753	126	110	-			☐☐	
			22:47	EN	|		48° 37.365	125° 35.752	125		-			☐☐	
103	BS06	14	22:51	BE	NET		48° 37.363	125° 35.716	124		-			☐☐	
			22:53	BO	|		48° 37.359	125° 35.690	127	112	-			☐☐	
			22:55	EN	|		48° 37.354	125° 35.669	126		-			☐☐	
104	BS06	14	23:15	BE	SET		48° 37.274	125° 36.473	117	15	-			☐☐	
105	Jdf01	15	14:35	BE	CTD		48° 32.082	124° 34.473	88		29-29	1	EA	☑☐	MT 1441
			14:37	BO	|		48° 32.102	124° 34.472	87	75	-			☐☐	
			14:38	EN	|		48° 32.119	124° 34.461	85		-			☐☐	
106	Jdf01	15	14:42	BE	NET		48° 32.159	124° 34.459	82		-			☐☐	
			14:43	BO	|		48° 32.167	124° 34.457	82	70	-			☐☐	
			14:44	EN	|		48° 32.172	124° 34.462	82		-			☐☐	
107	Jdf01	15	15:09	BE	SET		48° 31.955	124° 33.768	87	0	-			☐☐	
108	Jdf02	15	17:08	BE	SET		48° 30.778	124° 25.980	69	0	-			☐☐	
			:				° .	° .			-			☐☐	

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
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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 20 April 2016

Event 100 - aborted tow as no trawl eye data

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Nordic Pearl **Cruise ID** 2021-034

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
109	Jdf03	15	19:20	BE	CTD		48° 25.442	124° 13.525	108		30 - 30	1	EA	☑ ☐	MT 1926
			19:22	BO	|		48° 25.434	124° 13.494	108	100	-			☐ ☐	
			19:24	EN	|		48° 25.422	124° 13.455	108		-			☐ ☐	
110	Jdf03	15	19:28	BE	NET		48° 25.405	124° 13.382	108		-			☐ ☐	
			19:30	BO	|		48° 25.401	124° 13.353	108	95	-			☐ ☐	
			19:32	EN	|		48° 25.394	124° 13.312	107		-			☐ ☐	
111	JdF03		19:51	BE	SET		48° 25.386	124° 12.841	105	15	-			☐ ☐	
112	Jdf04		20:58	BE	SET		48° 23.468	124° 4.465	86	0	-			☐ ☐	
113	Jdf05		22:29	BE	CTD		48° 20.166	123° 49.639	143		31 - 3	1	EA	☑ ☐	MT = 2236
			22:32	BO	|		48° 20.178	123° 49.652	142	133	-			☐ ☐	
			22:34	EN	|		48° 20.188	123° 49.665	142		-			☐ ☐	
114	Jdf05		22:38	BE	NET		48° 20.198	123° 49.679	141		-			☐ ☐	
			22:40	BO	|		48° 20.203	123° 49.684	141	130	-			☐ ☐	
			22:43	EN	|		48° 20.208	123° 49.689	141		-			☐ ☐	
115	Jdf05		:	BE	SET		° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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
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

Notes: _____