

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2019-124

DATE:

From: June 15, 2019

To: July 15, 2019

VESSEL:

R.V. Nordic Pearl

PROJECT(S):

IPES

(Synoptic Survey)

King leg

1/2

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

WaterProperties.ca

**** 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: N/A

Data acquisition program: N/A

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

Primary CTD

Make: SBE model: 25 serial number: 456

Primary temperature serial number: 5130

Primary conductivity serial number: 3500

Secondary temperature serial number: —

Secondary conductivity serial number: —

Transmissometer: — Model: _____ s/n: _____

Transmissometer: — Model: _____ s/n: _____

Fluorometer: Model ECO AF Cable gain: ? s/n: 4185 P, S or NO pump?

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

Oxygen sensor: SBE Model: 58643 s/n: _____ P, S or NO pump?

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

Other sensors: PH- 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)

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 #1 Frame Size: _____ cm Mesh: 253 μ m Flowmeter: 6069

Bongo #2 Frame Size: _____ cm Mesh: 253 μ m Flowmeter: _____

Frame Size: _____ cm Mesh: _____ μ m Flowmeter: _____

Frame Size: _____ cm Mesh: _____ μ m Flowmeter: _____

Multinet ☐ BIONESS ☐ Neuston ☐ Others: _____

SN Duo RBR-

Trawl Gear:

~~Midwater Trawls:~~ SOG ☐ Highseas ☐ Pelagic ☒ Other: PBS

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. _____

QC5102 - the cod end hung up on the bongo
The first set of these casts were not rigged properly as there wasn't a weight line. The weight was being taken up by the net + cod end
This is being fixed for Wed. June 19/19.

Notes of June 26/19

Bongo Info; Bongo's were not corrected for wire angle due^(at any point) to the uncertainty related to the markings on the cable which were uneven 5m increments. Wire angles are noted in "comment" section and flow readings recorded on back of log book. Wire angle = w.a. =
- there is also no zooplankton log book. - Field note will be photographed and appended.

For all casts, the winch has no counter or speed controls. Due to ship heave the cable was frequently slowed down (especially on Bongo upcasts) - early markings were removed as they hung up the go-go line. The first marking was quite deep. In order to make it easy for the crew, wire out depths were generally rounded DOWN to the nearest "five".

It is clear from the CTD casts that we are frequently 10-20m off target depth. This could be a combination of Rod state, wire angle, insufficient weight and possibly counting errors or errors associated with the markings. Early days of this cruise were rough. I hesitate to compensate for this error by adding more wire out, even though the 10m differences seem persistent.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month <u>June</u>			Year <u>2019</u>			Vessel <u>Nordic Pearl</u>			Cruise ID <u>2019-124</u>						
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
25	11168	19	21:47	BE	NET		51° 4.790	127° 51.358	129	120	-		CW	☐	wa = 40°
			21:52	BD			51° 4.773	127° 51.276			-			☐	
			21:57	EN			51° 4.753	127° 51.195			-			☐	
31	10908	21	18:03	BE	CTD	MR	51° 0.211	128° 25.520	105	95	014-014	1	CW	☒	
			18:05	BD			51° 0.220	128° 25.507			-			☐	
			18:07	EN			51° 0.210	128° 25.486			-			☐	
32	10908	21	18:17	BE	NET		51° 0.105	128° 25.336	105	95	-		CW	☐	wa = 45°
			18:22	BD			51° 0.043	128° 25.333			-			☐	
			18:26	EN			50° 59.981	128° 25.355			-			☐	
34	11533	21	20:27	BE	CTD	MR	50° 11.503	128° 26.855	201	190	015-015	1	CW	☒	
			20:31	BD			50° 11.449	128° 26.820			-			☐	
			20:34	EN			50° 11.445	128° 26.798			-			☐	
35	11533	21	20:39	BE	NET		51° 11.327	128° 26.750	200	190	-		CW	☐	wa = 30°
			20:48	BD			51° 11.274	128° 26.704			-			☐	
			20:46	EN			51° 11.249	128° 26.685			-			☐	
40	11275	22	16:21	BE	CTD	MR	51° 5.770	128° 53.542	97	90	016-016	1	CW	☒	
			16:23	BD			51° 5.728	128° 53.505			-			☐	
			16:26	EN			°	°			-			☐	
			:				°	°			-			☐	

Event Type:

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Month <u>June</u> <u>PST</u>			Year <u>2019</u>			Vessel <u>Nordic Pearl</u>			Cruise ID <u>2019-124</u>						
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
41	11275	22	16:30	BE	NET		51° 5.545	128° 53.418	99	85	-		CW	☐ ☐	wa = 30°
			16:32	BO			51° 5.532	128° 53.380			-			☐ ☐	
			16:34	EN			51° 5.527	128° 53.371			-			☐ ☐	
43	11398	22	17:57	BE	CTD	MR	51° 9.470	129° 1.363	143	135	017-017	1	CW	☐ ☒	
			17:59	BO			51° 9.468	129° 1.372			-			☐ ☐	
			18:01	EN			51° 9.459	129° 1.375			-			☐ ☐	
44	11398	22	18:08	BE	NET		51° 9.458	129° 1.394	143	135	-		CW	☐ ☐	wa = 20°
			18:10	BO			51° 9.470	129° 1.404			-			☐ ☐	
			18:12	EN			51° 9.476	129° 1.419			-			☐ ☐	
46	11521	22	19:28	BE	CTD	MR	51° 11.620	129° 7.575	198	185	018-018	1	CW	☐ ☒	
			19:31	BO			51° 11.646	129° 7.566			-			☐ ☐	
			19:34	EN			51° 11.677	129° 7.523			-			☐ ☐	
47	11521	22	19:38	BE	NET		51° 11.722	129° 7.401	205	190	-		CW	☐ ☐	wa = 20°-40°
			19:42	BO			51° 11.742	129° 7.316			-			☐ ☐	
			19:46	EN			51° 11.779	129° 7.246			-			☐ ☐	
54	11145	23	16:51	BE	CTD	MR	51° 3.659	129° 8.953	146	135	019-019	1	CW	☐ ☐	
			16:52	BO			51° 3.614	129° 8.892			-			☐ ☐	
			16:54	EN			51° 3.582	129° 8.838			-			☐ ☐	
			:				°	°			-	</			

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Month <u>June</u>		Year <u>2019</u>		Vessel <u>Nordic Pearl</u>		Cruise ID <u>2019-124</u>									
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
55	11145	23	16:59	BE	NET		51° 3.522	129° 08.681	147	135	-		CW	☐ ☐	W.A = 30°
			17:02	BO			51° 3.500	129° 08.573			-			☐ ☐	
			17:04	EN			51° 3.462	129° 08.501			-			☐ ☐	
57	10894	23	18:41	BE	CTD	MR	50° 59.233	129° 12.275	152	140	020-020	1	CW	☒ ☐	
			18:45	BO			50° 59.157	129° 12.165			-			☐ ☐	
			18:46	EN			50° 59.129	129° 12.137			-			☐ ☐	
58	10894	23	18:50	BE	NET		50° 59.064	129° 12.081	152	140	-		CW	☐ ☐	W.A = < 20°
			18:53	BO			50° 59.036	129° 12.048			-			☐ ☐	
			18:55	EN			50° 59.003	129° 12.009			-			☐ ☐	
60	10772	23	20:24	BE	CTD	MR	50° 57.021	129° 03.490	92	85	021-021	1	CW	☒ ☐	
			20:25	BO			50° 56.996	129° 03.500			-			☐ ☐	
			20:28	EN			50° 56.945	129° 03.541			-			☐ ☐	
61	10772	23	20:33	BE	NET		50° 56.871	129° 03.645	92	85	-		CW	☐ ☐	W.A = 20°
			20:34	BO			50° 56.846	129° 03.680			-			☐ ☐	
			20:36	EN			50° 56.813	129° 03.729			-			☐ ☐	
66	10394	24	16:39	BE	CTD	MR	50° 52.344	129° 13.128	92	85	032-032	1	CW	☒ ☐	
			16:39	BO			50° 52.349	129° 13.117			-			☐ ☐	
			16:41	EN			50° 52.366	129° 13.081			-				

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Month <u>June</u>			Year <u>2019</u>			Vessel <u>Nordic Pearl</u>			Cruise ID <u>2019-124</u>						
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							
67	10394	24	16:15	BE	NET		50° 52.411	129° 12.982	92	85	-		aw	☐	w.a = 0-10°
			16:47	BO			50° 52.420	129° 12.948			-			☐	
			16:49	EN			50° 52.436	129° 12.906			-			☐	
70	10642	24	19:00	BE	CTD	MR	50° 55.949	129° 21.211	175	165	023-023	1	CW	☒	Surface bucket
			19:02	BO			50° 55.976	129° 21.205			-			☐	
			19:05	EN			50° 55.005	129° 21.208			-			☐	
70	10642	24	19:05	E	Surface bucket	BOT	50° 55.005	129° 21.208	175	165	023-023	1	CW	☐	
71	10642	24	19:08	BE	NET		50° 56.010	129° 21.238	175	165	-		CW	☐	w.a 0-10
			19:12	BO			50° 56.028	129° 21.263			-			☐	
			19:16	EN			50° 56.044	129° 21.362			-			☐	
76	9900	25	16:44	BE	CTD	MR	50° 42.996	128° 53.966	172	160	024-024	1	CW	☒	
			16:48	BO			50° 42.969	128° 53.891			-			☐	
			16:51	EN			50° 42.944	128° 53.827			-			☐	
77	9900	25	16:57	BE	NET		50° 42.908	128° 53.721	175	165	-		CW	☐	w.a = 15°
			17:00	BO			50° 42.889	128° 53.668			-			☐	
			17:02	EN			50° 42.868	128° 53.609			-			☐	
79	10088	25	19:13	BE	CTD	MR	50° 45.776	128° 43.413	82	75	025-025	1	CW	☒	w.a 0-10
			19:15	BO			50° 45.77								

Event 70: Ripped bottle broken, water @ surface sampled with bucket

This page is for any notes or observations

nutrient 028 was left out for 18 hours

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Ocean Sciences Division, Institute of Ocean Sciences

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Month <u>June</u>			Year <u>2019</u>			Vessel <u>Nordic Pearl</u>			Cruise ID <u>2019-124</u>						
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
93	9284	26	19:41	BE	NET		50° 31.445	128° 22.555	159	150	-		CW	☐ ☐	w.a = 10°
			19:44	BD			50° 31.396	128° 22.545			-			☐ ☐	
			19:46	EN			50° 31.364	128° 22.537			-			☐ ☐	
98	8292	27	16:35	BE	CTD	MR	50° 14.686	127° 57.437	87	80	029-029	1	CW	☐ ☒	
			16:36	BD			50° 14.694	127° 57.471			-			☐ ☐	
			16:38	EN			50° 14.712	127° 57.512			-			☐ ☐	
99	8292	27	16:43	BE	NET		50° 14.768	127° 57.551	83	75	-		CW	☐ ☐	w.a = N/A
			16:44	BD			50° 14.782	127° 57.565			-			☐ ☐	
			16:45	EN			50° 14.805	127° 57.590			-			☐ ☐	
101	8413	27	18:45	BE	CTD	MR	50° 16.986	128° 9.723	182	175	030-030	1	CW	☐ ☒	
			18:47	BD			50° 17.011	128° 9.780			-			☐ ☐	
			18:50	EN			50° 17.002	128° 9.853			-			☐ ☐	
102	8413	27	18:54	BE	NET		50° 17.102	128° 9.940	182	170	-		CW	☐ ☐	w.a = 30-40°
			18:57	BD			50° 17.153	128° 9.873			-			☐ ☐	
			18:59	EN			50° 17.198	128° 9.832			-			☐ ☐	
104	8661	27	20:27	BE	CTD	MR	50° 21.499	128° 16.713	192	185	031-031	1	CW	☐ ☒	
			20:29	BD			50° 21.485	128° 16.745			-			☐ ☐	
			20:31	EN			50° 21.478	128° 16.757			-			☐ ☐	
			:				°								

This page is for any notes or observations

Bmgo 115 1x4" Aquorea removed from fixed sample.
#033 CHE B - not processed.

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Month <u>June</u>			Year <u>2019</u>			Vessel <u>Nordic Pearl</u>			Cruise ID <u>2019-124</u>						
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
121	3699	29	16:54	BE	NET		48°53.504	126°12.543	124	115	-		CW	☐ ☐	wa=15°
			16:56	BO			48°53.543	126°12.487			-			☐ ☐	
			16:57	EN			48°53.574	126°12.430			-			☐ ☐	
123	4197	29	18:39	BE	CTD	MR	49°2.076	126°20.168	127	120	035-035	1	CW	☐ ☐	
			18:41	BO			49°2.090	126°20.177			-			☐ ☐	
			18:43	EN			49°2.013	126°20.208			-			☐ ☐	
124	4197	29	18:47	BE	NET		49°1.910	126°20.146	128	120	-		CW	☐ ☐	wa=0°
			18:49	BO			49°1.935	126°20.102			-			☐ ☐	
			18:51	EN			49°1.951	126°20.077			-			☐ ☐	
126	4446	29	20:03	BE	CTD	MR	49°6.740	126°22.821	117	105	036-036	1	CW	☐ ☐	
			20:05	BO			49°6.756	126°22.800			-			☐ ☐	
			20:06	EN			49°6.775	126°22.780			-			☐ ☐	
127	4446	29	20:09	BE	NET		49°6.806	126°22.955	110	100	-		CW	☐ ☐	wa=0°
			20:11	BO			49°6.816	126°22.746			-			☐ ☐	
			20:12	EN			49°6.824	126°22.739			-			☐ ☐	
			:				°	°			-			☐ ☐	
			:				°	°			-			☐ ☐	
			:				°	°			-			☐ ☐	
			:				°	°			-			☐ ☐	

Event Type:

BOT = Bottle cast (no CTD)
 CTD = Standalone CTD
 ROS = CTD in

Event #	Station	FlowStart	FlowEnd
5	J503	41708	42281
11	QCST2	42280	43568
16	QCST04	43568	44809
21	10788	43812	44130
25	11168	45202	46857
32	10908	46838	47520
35	11533	47578	48762
41	11275	48661	49155
44	11398	49155	49891
47	11521	49891	51597
55	11145	51498	52779
58	10894	52780	53641
61	10772	53641	54010
67	10394	54011	54111
71	10642	54111	55289
77	9900	55289	56263

Event #	Station	ST	FIN
80	10028	56265	56312
83	10652	56315	56898
90	8913	56898	57365
93	9284	57365	58330
99	8292	58328	58778
102	8113	58778	59870
105	8661	59871	61893*
111	7547	61895	61982 (60895-60982)
115	7791	61982	61005 ? (60982-61005)
121	3699	61008	61848
124	4197	61845	62497
127	4446	62497	63001

may have
read the 1000
↓
shall wrong

DAILY SCIENCE LOG BOOK

10 pg.

2/2

MISSION
NUMBER

2019-124

DATE:

From:

June 15, 2019

To:

July 15, 2019

VESSEL:

RV Nordic Pearl

PROJECT(S):

IPES (Synoptic Survey)

Boldt leg

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

WaterProperties.ca

Captain: Tim First Officer: _____
Second Officer: _____ Third Officer: _____
Fishing Master: Brad Chief Engineer: _____

Mission Participants / Agencies: _____

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

1st Leg Scientific Personnel: Chief Scientist: Jackie King

Name	Watch	Cabin	Name	Watch	Cabin
<u>Cindy</u>	_____	_____	_____	_____	_____
<u>Tyler</u>	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

2nd Leg Scientific Personnel: Chief Scientist: Jennifer Boldt

Name	Watch	Cabin	Name	Watch	Cabin
<u>Jasmine Wietzke</u>	_____	_____	_____	_____	_____
<u>Hilari Dennis-Bohm</u>	_____	_____	_____	_____	_____
<u>Linnée</u>	_____	_____	_____	_____	_____
<u>Katarina</u>	_____	_____	_____	_____	_____
<u>Nick</u>	_____	_____	_____	_____	_____
<u>Bo Bo</u>	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

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are these correct?
(yes)

Month <u>JULY</u>			PST		Year <u>2019</u>		Vessel <u>NORDIC PEARL</u>			Cruise ID <u>2019-124</u>					
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
155	6928	3	18:38	BE	CTD	MR	49°51.046	127°20.899	75	70	43-	1	JW	☒	2chl + 1 not
			18:39	BO			49°51.046	127°20.921			-			☐	B chl sample filtered fast, filter put on sloppy
			18:40	EN			49°51.047	127°20.944			-			☐	calm conditions
156	6928	3	18:43	BE	NET		49°51.070	127°21.026	78	70	-	1	JW	☐	fluorometer worked, W.2. = 0
			18:44	BO			49°51.074	127°21.040			-			☐	some jellies taken out of flow. side
			18:46	EN			49°51.079	127°21.057			-			☐	sample (see notes)
158	6925	3	20:20	BE	CTD	MR	49°49.789	127°29.407	77	70	44-	1	JW	☒	1xchl + 1xnuts
			20:21	BO			49°49.803	127°29.416			-			☐	calm conditions
			20:21	EN			49°49.815	127°29.432			-			☐	
159	6925	3	20:25	BE	NET		49°49.893	127°29.659	78	70	-		JW	☐	W.2. = 35°
			20:26	BO			49°49.934	127°29.704			-			☐	fluorometer worked
			20:27	EN			49°49.953	127°29.736			-			☐	calm conditions
164	4935	4	16:28	BE	CTD	MR	49°16.369	126°58.674	170	165	45-	1	JW	☒	calm conditions.
			16:30	BO			49°16.366	126°58.686			-			☐	2xchl + 2xnuts
			16:31	EN			49°16.363	126°58.703			-			☐	
165	4935	4	16:35	BE	NET		49°16.271	126°58.849	170	160	-		JW	☐	W.2. = 20
			16:37	BO			49°16.244	126°58.920			-			☐	calm conditions
			16:39	EN			49°16.225	126°58.963		</					

July 6, 2019:

This page is for any notes or observations

- Calm conditions all day & started raining/misting on the third CTD/Bongo (Sta 3329)
- CTD & dissolved oxygen sensor appears to be working somewhat normal again.
 - ↳ maybe obololids (spelling?) have unclogged (best guess)

July 7, 2019:

This page is for any notes or observations

- only did 1 CTD/Bongo (originally planned for two, because stations were so close together, but changed location of our third tow b/c of lots of wild-life in the area... That new location was close to the first tow, where we already did a CTD/Bongo)
- flowmeter worked
- calm conditions all day.
- * need to put more circular labels for formaldehyde spiked zooplankton jars.
- * ran out of labels that go INSIDE zooplankton jars (spiked w/ formaldehyde), luckily I had a backup pad! ☺

July 9, 2019:

This page is for any notes or observations

- flowmeter kind of working - doesn't quite seem to be getting exact number increase for the depth bongo deployed to vs. what was expected
- was calm conditions, but rainy all day

July 10 2019: 1.5-

This page is for any notes or observations

- wavy conditions (~2m swell)
- flowmeter worked.
- only 2 stations today (3rd is close to another station)
- only have enough scintillation vials for 1 chl. dup. per day now

July 13, 2019:

This page is for any notes or observations

- need more backup whatman filters. (2 used @ a time)
- CTD 259 (sn 2720) - a little water spilled on deck (niskin got stuck in CTD cage when coming aboard), but had enough water for samples
- lots of leaks near handle of sprayer used for zooplankton processing.
(keeps happening even after pressure using electrical tape to fix)
- flowmeter seemed to work all day

Net: BONGO's - JASMINE is Great! ☺ ← thank youuuu! ☺

Event #:	Station:	Wire°	Flow Start:	Flow End:	Conditions	Event #:
133	4451	0	63000	63328	Calm	231
136	4076	30	63328	63361	Calm	235
141	7046	30	63361	63379	Calm	241
144	7173	30	63380	63728	Calm	244
147	7170	5	63728	63780	Calm	250
153	6307	25	63780	64356	Calm	254
156	6928	0	64356	64718	Calm	260
159	6925	35	64718	65135	Calm	263
165	4935	20	65135	66080	Calm	266
168	5307	40	66080	67083	Calm	
171	5811	5	67083	67442	Calm	
177	4442	30	67442	68145	Calm	
180	4562	40	68145	69249	Calm	
182	4937	20	69249	70185	Calm	
187	3829	25	70185	70589	Calm	
190	3579	20	70591	71008	Calm	
193	3329	15	71008	71518	Calm	
199	3326	20	71518	72149	light rain	
207	3207	10	72149	72168	Calm	
210	3457	5	72168	72535	Calm	
213	3835	10	72539	73075	Calm	
219	2592	15	73075	73827	Calm, rainy	
222	2843	35	73827	74453	Calm, rainy	
225	3094	20	74453	74621	Calm, rainy	

Station:	Wire°	Flow Start:	Flow End:	cond.
2335	15	74621	75109	2m swell
3084	45	75109	76039	1.5 m swell
2582	20	76039	76498	Calm
2703	25	76498	77133	1m swell
2208	5	77133	77787	Calm
1708	25	77787	78748	Calm
2720	5?	78748	79411	Calm
2848	20	79411	79727	Calm
2850	25	79727	80011	Calm

* Plankton net tow log sheet also available (Jasmines binder) ← for leg 2.

