CRUISE REPORT

Eco-FOCI’s EcoFOCI Arctic Cruise 2015

**Cruise Number: RB1505**

**FOCI Number:1RB15**

**Ship:** NOAA Ship *Ronald H. Brown*

**Area of Operations:** Cjhukchi and Bequfort Seas

Depart: Kodiak, AK 06 August 2015

Return: Dutch Harbor, AK 04 September 2015

**Participating Organizations and Principal Investigators:**

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NOAA/NOS/NCCOS Report submitted as project RB1506

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**Objectives of Cruise:**

Ecosystems & Fisheries-Oceanography Coordinated Investigations (EcoFOCI) is an effort by National Oceanic and Atmospheric Administration (NOAA) and associated academic scientists. Eco-FOCI’s goal is to understand the effects of abiotic and biotic variability on ecosystems of the Gulf of Alaska, Bering, Chukchi and Beaufort seas. This cruise is in support of research sponsored by NOAA’s North Pacific Climate Regimes & Ecosystem Productivity Program, the Bureau of Ocean Energy Management (BOEM), and PMEL/AFSC base.

PMEL/ Eco-FOCI RB-15-05

The Eco-FOCI project goal is to sample the series of transects shown in Figure 1 and 2 and listed Table 1 of the appendix. Stations operations always included a CTD cast. In the Chukchi, Tucker sled trawls were taken on some lines, but in the Beaufort Sea, MARMAP (bongo) tows were substituted for the sled trawls. This is part of the multi-institutional effort to obtain a baseline characterization of the biological, chemical and physical oceanography of ice-free portions of the U.S. Chukchi and Beaufort Seas and to understand the changing ecosystems NOAA/PMEL/Eco-FOCI has occupied several transects across their shelves during four of the last five years. In addition, we have deployed multiple moorings at sites on the Chukchi shelf. Several of these transects are part of the “Distributed Biological Observatory (DBO)”. DBO sampling is focused on transects centered on locations of high productivity, biodiversity and rates of biological change. The DBO effort has expanded into the Beaufort as of 2015, and comprises part of our effort there.

NOS RB-15-06 (reported in a separate document by S. Ian Hartwell)

The goal of the NOS project was to assess habitat conditions that influence biodiversity and distribution of benthic infaunal communities, contaminants, and chemical body burdens of resident organisms as measures of environmental health in the bays and lagoons in the Chukchi and Beaufort Seas in the vicinity of proposed oil transport pipelines. Baseline data will be essential for monitoring pollution control effectiveness and NRDA activities in the event of a spill. Offshore sampling in the region was carried out from 2010-2012 in collaboration with the State of Alaska Dept. of Environmental Conservation (DEC) and the University of Alaska Fairbanks (UAF). The assessment will be augmented by further collaboration with the DEC Aquatic Resources Survey to address information gaps relevant to Ocean Discharge Criteria Evaluation (ODCE) of lease sale areas relating to oil and gas development in rivers entering the Chukchi and Beaufort Seas. Information gaps identified by a DEC/UAF working group are determination of baseline concentrations for hydrocarbons and trace metals in key prey of anadromous and marine fishes inhabiting Chukchi and Beaufort Sea estuaries.

We were accompanied by two volunteer bird watchers working for Kathy Kuletz of the U.S. Fish and Wildlife Service Division of Migratory Bird Management in Anchorage, AK. The goal of that project is to examine seabird and marine mammal distribution relative to oceanographic and biological features along the entire cruise track. They began their surveys on 6 August 2015 from Dutch Harbor, and completed their Bering Sea observations on 4 September at the port of Dutch Harbor.

As an ancillary project scientists from Oregon State University operated a MIMS (Membrane Inlet Mass Spectrometer) on the flow-through science seawater line for determination of O2/Ar -based net community metabolism. OSU also operated an automated surface POC (Particulate Organic carbon) sampling and optical measurements from the underway line, and perhaps some isotopic (d13C, d15N) determinations on a subset of those. They continued to operate and monitor the pCO2 system installed for the previous cruise and had the permission of those scientists. They also installed system to monitor nitrate concentrations from the flow through. These scientists collected discrete samples from the Niskin bottles for DIC, DOC, POC, and O2/Ar on selected hydrographic transects (LB, IC, WT, BC and B154). At selected stations throughout the cruise samples were collected and filtered for DNA analysis at Oregon State University.

Katrina Wyllie of the Operations branch of NOAA/NOS requested that the Brown transit from Unimak Pass to Bering Strait follow the PARS corridor to collect bathymetric data from the ship's multibeam system. This study is a continuation of and an expansion of scope to the Port Access Route Study (PARS) in the Bering and Chuckchi Seas. The Coast Guard has developed a potential vessel routing system for the area. The goal of the study is to help reduce the risk of marine casualties and increase the efficiency of vessel traffic in the region. The recommendations of the study may lead to future rulemaking action or appropriate international agreements. The multibeam data collected during the entire cruise was sent to Ms. Wyllie for processing.

The final ancillary project involved the deployment of two ARGO floats in Bering Canyon on September 3 shortly before arriving in Dutch Harbor, AK at the end of the cruise.

**Samples Collected:**

EcoFOCI collected water samples for chlorophyll, nutrients, salinity, and dissolved oxygen in the water. Zooplankton tows were done using the following types of gear: MARMAP bongo tows using 60 and 20 cm bongos, with. 153, 333, and 505 micron mesh nets, and Tucker sled trawls with 2 nets, one opened for epi-benthic trawling, and a second net for an oblique tow through the rest of the water column. Finally, OSU scientists sampled dissolved inorganic carbon (DIC) and particulate organic carbon (POC) from the flow-through system, the Niskin rosette, and from small boats. At selected stations they sampled O2/Ar and dissolved organic carbon (DOC). In addition, on certain transects they sampled the Niskins for RNA and DNA.

**Methods**

**1. Station Measurements**

**a. CTD**

The conductivity, temperature and depth (CTD) casts were made with the EcoFOCI's CTD with SeaBird 911 with dual temperature and conductivity sensors. Attached to the CTD were 2 SBE43 oxygen sensors, fluorescence with a WetLabs ECO chlorophyll fluorometer, and a Biospherical Instruments QPC2300-HP Photosynthetically Activated Radiation (PAR) sensor. After every station the CTD was flushed with distilled water.

**b. Total Chlorophyll**

We collected samples from 6 depths at each station, filtered them through GFF filters and froze them at –80°C for analysis ashore. These were filtered through 5micron membrane filters, then the GFF filters. Both fractions were then frozen at –80°C for chlorophyll analysis ashore after the cruise.

**c. Nutrient Measurements**

Nutrient samples were collected from the Niskin bottles in acid-washed 35-ml polyethylene bottles after three complete seawater rinses and typically analyzed within 12 hours of sample collection. Nutrients were analyzed with a continuous flow analyzer (CFA) using the standard analysis protocols for the WOCE hydrographic program as set forth in the manual by L.I. Gordon, et al (2000). Approximately 1900 samples from CTD casts were analyzed for phosphate (PO4-), nitrate (NO3-), nitrite (NO2-), orthosilicic acid (H4SiO4), and ammonium (NH4+).

A mixed stock standard consisting of silicic acid, phosphate and nitrate was prepared at PMEL by dissolving high purity standard materials (KNO3, KH2PO4 and Na2SiF6) in deionized water using a two-step dilution for phosphate and nitrate. This standard was stored at room temperature. Nitrite and ammonium stock standards were prepared about every 10 days by dissolving in distilled water, and these standards were stored in the refrigerator. Working standards were freshly made each day by diluting the stock solutions in low nutrient seawater. The low nutrient seawater used for the preparation of working standards, determination of blank, and wash between samples was filtered seawater obtained from low-nutrient Pacific surface waters.

A typical analytical run consisted of distilled water blanks, standard blanks, working standards, a standard from the previous run, samples, replicates, and working standards, and standard and distilled water blanks. Four replicates were usually measured on each run, plus any samples with questionable peaks. The overall precision of the analysis was within 1% of full range.

**d. Oxygen Measurements**

Winkler titrations were conducted according to WOCE protocols. On each cast, the number of samples and the depths sampled were dependent on the oxygen profile from the CTD. In deep water, samples were typically collected at every depth below 100m. On the shelf, samples were usually collected in the upper layer, or in the bottom mixed layer. End point determinations of the Winkler titration were determined poteniometrically. Thiosulfate was standardized for each batch of sample titrations, and blanks were measured periodically during the cruise.

**e. Plankton Sampling**

Along the B154 transect in the Beaufort, zooplankton and ichthyoplankton were collected using MARMAP bongo tows with 20-cm and 60-cm bongo nets with 333, and 505-micron mesh. Samples were preserved with buffered formalin. Prior to preservation, the 333-m sample was examined for presence of fish larvae. In the Chuckchi Sea Tucker sled trawls were conducted instead of the bongo tows along transects LB, IC (DBO4), WT and BC (DBO5). A SeaBird FastCAT was attached to wire, just above the bongo frames to allow the depth of the tow to be monitored, and temperature and salinity of the tow to be recorded.

On the first occupation of the LB line there were several casts during which the net for the oblique tow failed to open. Therefore, at the end of the cruise stations LB09-LB03 were re-occupied with both hydrographic casts and successful Tucker trawls.

Statellite

**e. Bird Observations**

Observers surveyed marine birds and mammals from the port side of the bridge using standard USFWS survey protocol during daylight hours while the vessel was underway. A single observer scanned the water ahead of the ship, using hand-held 10x binoculars for identification, and recorded all birds and mammals within a 300-m arc, extending 900 from the bow to the beam. They used strip transect methodology with three distance bins extending from the vessel: 0-100 m, 101- 200 m, 201-300 m. Unusual sightings beyond the 300 m transect were also recorded for rare birds, large bird flocks, and mammals. They noted the animal’s behavior (flying, on water, foraging). Birds on the water were counted continuously, whereas flying birds were recorded during quick ‘Scans’ of the transect window at approximately 1-min intervals, depending on the ship’s speed.

Observations were entered directly into a laptop computer using the DLOG3 program (Ford Ecological Consultants, Inc.) with a GPS interface from the ship’s system. Location data from the GPS were automatically written to the program at 20-second intervals, as well as our entries on weather conditions, Beaufort Sea State, and glare conditions. At the beginning of each transect the observers recorded wind speed and direction, air temperature, and sea surface temperature.

**e. Satellite Tracked drifter Deployments (ARGOS)**

At four sites marked on Figure 2 satellite -tracked drifters were deployed.

**e. ARGO float deployments**

At two sites on the Bering Sea slope north of Bering Canyon ARGO floats were deployed.

**2. Underway Seawater Systems**

The ship’s underway seawater flow-through analysis system collects temperature, salinity, and fluorescence through a typical TSG system. The OSU group (led by Dr. Laurie Juranak) installed a nitrate system in a second flow-through location on the ship. Calibration samples were taken 1-2 times daily from the flow-through seawater line and analyzed for chlorophyll, and nitrate concentration and salinity. This group sampled the flow-through system for POC approximately every two hours for duration of the cruise.

Members of Dr. Richard Feely’s research team from NOAA/PMEL installed a GO 8050 Underway pCO2 system that collected real time pCO2 measurements from seawater and air. This was operated by the team of scientists from Oregon State University.

**Cruise Summary:**

This cruise incorporated two projects to the Chukchi and Beaufort Seas by scientists from NOAA/PMEL/ EcoFOCI (RB1505) and from NOAA/NOS (RB1506). This was the first such joint effort on a NOAA ship by two groups attempting very different objectives. The captain and chief operatrions officer ensured that the projects were able to operate simultaneously by ensuring that extensive planning and communication took place during the seven months of planning the projects prior to the cruise. The scientists for these two projects, working with Captain Kamphouse and Adrienne Hopper, the Operations officer, demonstrated considerable flexibility in cooperating and compromising before and during the cruise in order for each to achieve the majority of the desired goals. Challenging weather and ice conditions also influenced the ability of each group to achieve its goals. As such, it was considered highly successful be all involved

The EcoFOCI project focused on occupying transects across the shelves taking hydrographic casts at every station In the Chukchi Tucker sled trawls were taken on the LB, IC, WT an BC transects to sample the epi-benthos as well as the zooplankton. In the Beaufort Sea MARMAP bongo tows were taken instead, due to the irregular, and poorly-known bathymetry. The NOAA/NOS group used the workboat *Peggy D*, from the NOAAShip *Oscar Dyson* primarily to and to assess habitat conditions that influence biodiversity and distribution of benthic infaunal communities, contaminants, and chemical body burdens of resident organisms as measures of environmental health in the bays and lagoons in the Chukchi and Beaufort Seas in the vicinity of proposed oil transport pipelines. Dr. S. Ian Hartwell of NOS is submitting a separate report for that project (RB1506).

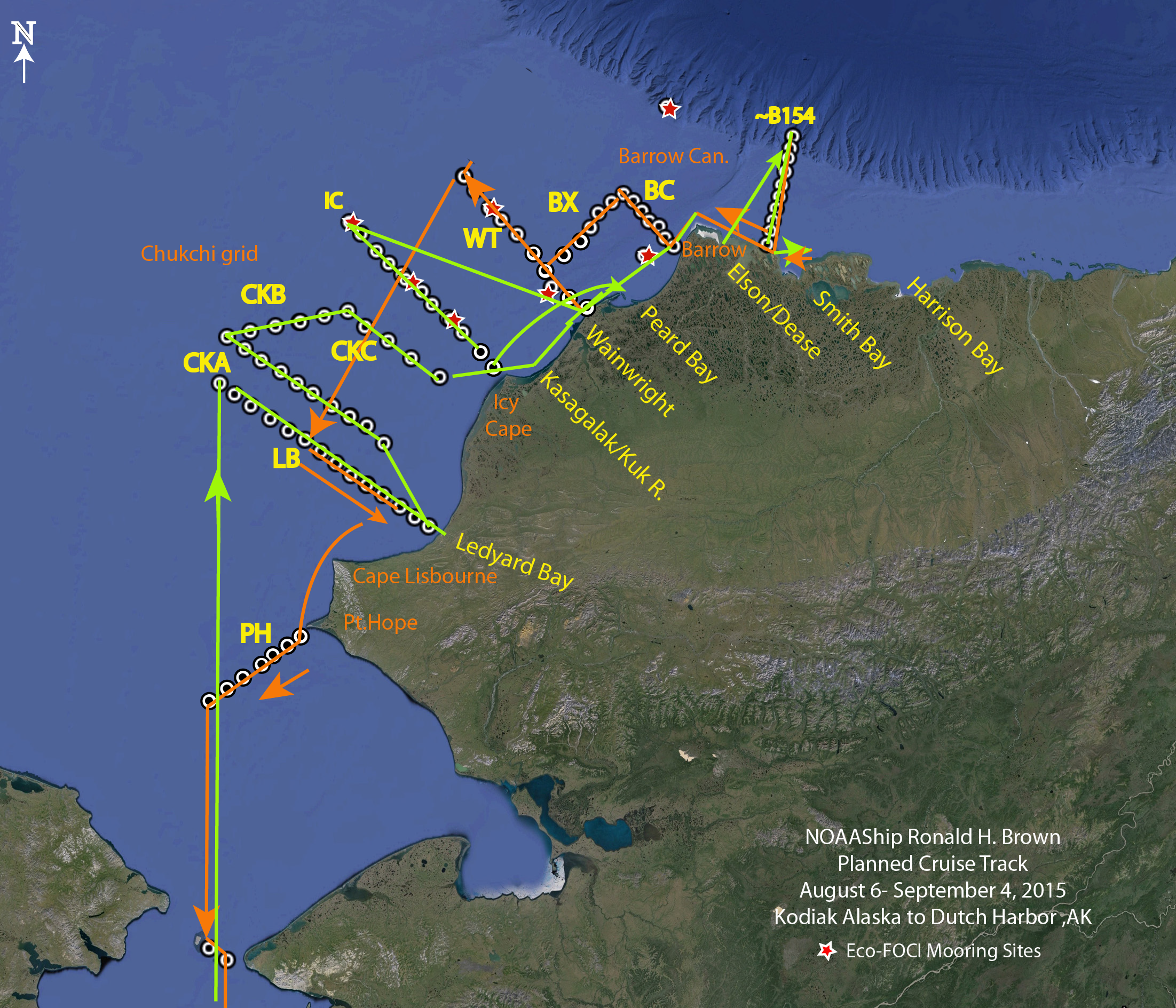


Figure 1. Cruise track for RB1505/1506. Transect names appear in black. The Eco-FOCI mooring sites are shown as red stars. The cruise track to the north and east is shown in green, and the track returning to the south and west are shown in orange.Small boat operations were conducted to sample Wainwright, Peard Bay, Elson Lagoon, Dease Inlet and Smith Bay, as well as two alongshore set of stations between Wainwright and Peard Bay. Sampling in Harrison Bay and Transects planned to the east of Smith Bay were abandoned due to the presence of multi-year ice coverage exceeding 60%. Three other short lines (not shown) across Barrow canyon were occupied. They are shown in Figure 2 labeled BCA, BCB, and BCC.

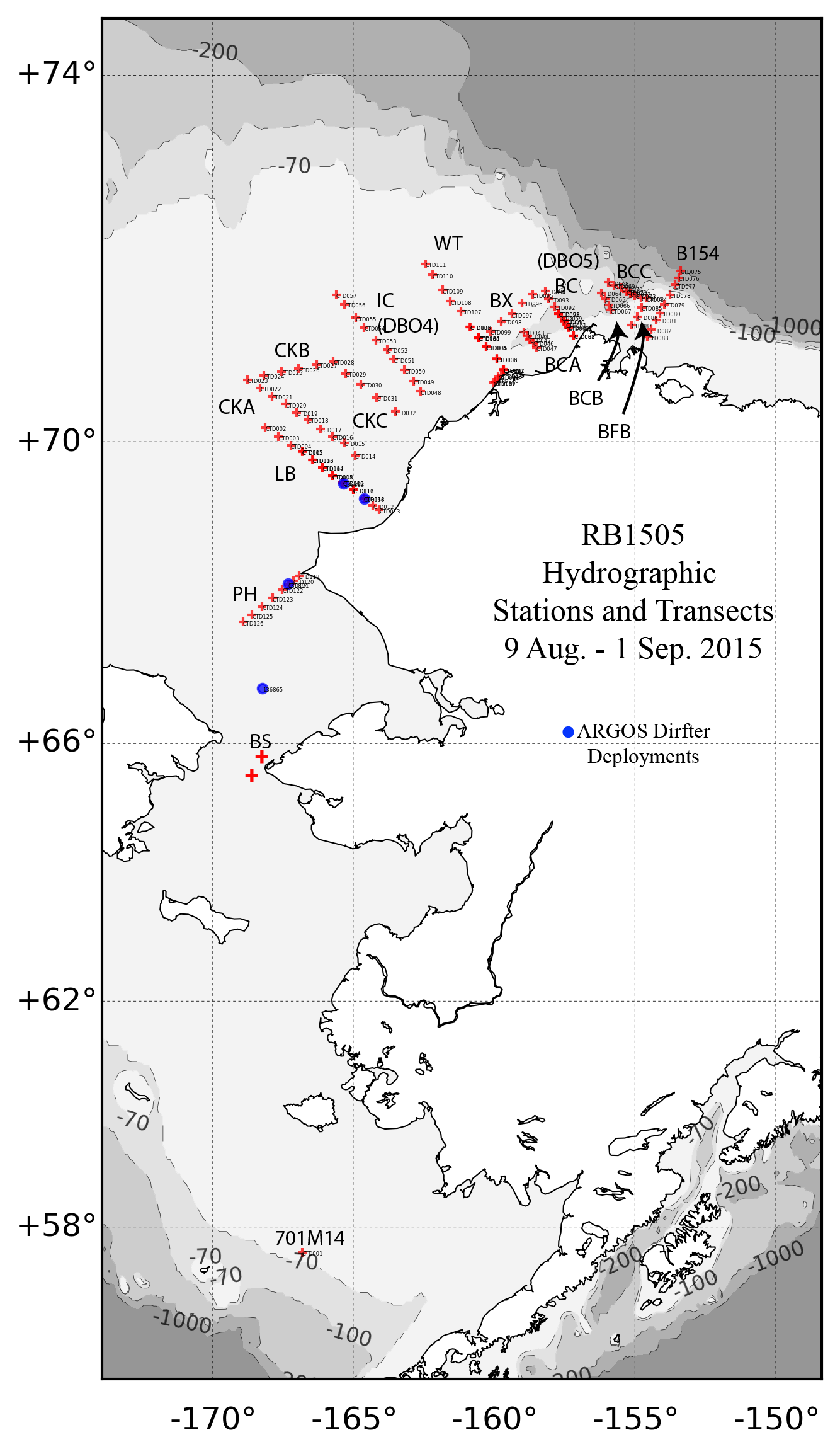


Figure 2. Map of CTD sections. Transect names appear in black. The Eco-FOCI mooring sites are shown as red stars. The cruise to the north and east is shown in green, and the track returning to the south and west are shown in orange.Small boat operations were conducted to sample Kasagalak Bay, Wainwright, Peard Bay, Elson Lagoon, Dease Inlet and Smith Bay, as well as two alongshore set of stations between Wainwright and Peard Bay.

On 09 August 2015 one CTD cast was taken at the EcoFOCI station 70M14, a site where high ammonium concentrations have been observed iin previous summers. This cast was sampled for an experiment to determine the effects of sampling techniques and timing of analyses on measurements of nutrient concentrations.

The ship proceeded northward through Bering Strait. It had been planned that operations would begin with occupation of the Point Hope (DBO3) transect followed by small boat operations in Kasagalak Bay and Wainwright. However, the weather forecast was unfavorable for starting small boat operations on time. Therefore, the ship proceeded to the northern end of the LB hydrographic/ Tucker sled transect on 11 August. This was followed by occupation of the CK grid of hydrographic stations 12-14 August.

Small boat operations began at noon on 14 August at Wainwright. That evening we CTD stations were occupied from WT5-WT1, the portion of the Wainwright hydrographic line at the head of Barrow Canyon. On 15 August NOS scientists again sampled from the *Peggy D* in Wainwright/ Kuk River, while the *Brown* took CTD casts and grab samples for the NOS stations between Wainwright and Peard Bay. That night the BCA the hydrographic transect was occupied.

On 16 August, NOS scientists sampled a second line of stations between Wainwright and Peard Bay, this one inshore (10-12m depth) of that sampled from the *Brown* on the 15th. With weather no longer favorable for small boat operations, the ship transited to the northern end of the Icy Cape line (DBO4). August 17 was spent taking CTD casts and Tucker trawls on that line.

The Brown returned to Peard Bay for small boat operations on 18 and 19 August, before transiting to Elson Lagoon/ Dease Inlet on the Beaufort Sea just east of Barrow, where NOS scientists sampled on 20 and 21 August. At night three more hydrographic transects across successively deeper portions of Barrow Canyon were occupied: BC, BCB, and BCC. Ice flows caused at least one station to be relocated on the last of these lines. After the completion of the small boat opsin Dease Inlet, the ship transited toward the outer end of the B154 line, which was approximately the location of heavy pack ice. The goal was to occupy at least one station with a bottom depth exceeding 1000m, which we succeeded in doing at the edge ice conditions deemed to be navigable by the *Ronald H. Brown.*

Upon completion of the B154 line the ship began to transit alongshore to the inner end of the B152 (DBO6) transect. Almost immediately, multi-year ice was encountered. The percent ice cover rapidly increased, such that at longitude 153°50' W progress was halted when the coverage approached 60%, and the cruise objectives each of there had to be abandoned. What the ship encountered was a large swath of multi-year ice that had broken free of the main arctic ice pack earlier in the summer, then rotated westward under winds that were dominantly from the east. At the time the Brown encountered this band, it had pressed close to the coast as far west as Smith Bay and blocked access to the east.

Two days of small boat operations by NOS were possible in Smith Bay on August 23 and 24.

With a forecast of stormy weather for the next week, the NOS science party chose to debark via small boat at Barrow on 25 August, two days earlier than planned. For the nest 24 hours the EcoFOCI scientists were able to occupy the BC transect (DBO5) and the BX line. Operations ceased after we completed the first station on the WT line (WT01-CTD100) on the evening of 26 August. A peristant gale prevented resumption of operations until resume operations until 3 hours later, on 29 August.

The ship then transited back to the LB line, so that on 30 August we were able to reoccupy stations LB09-LB03. At several of those stations on their first occupation, the second net on the Tucker trawl had failed to open. On the second transit, all trawls were successful. Re-sampling a major portion of the LB line and the occupation of the entire WT line after the large storm meant that this project succeeded in sampleing two transects under different wind regimes, before and after a major mixing event.

As the Ron Brown continued the transit west and south to the Bering Sea, CTD stations were made on the Point Hope Line (DBO3) on and at 2 DBO sites in Bering Strait on 01 September. The transit to to Dutch Harbor followed the PARS line until the latitude of the Pribilof Islands, where we left it to cross over the Bering Slope. There, we deployed two ARGO floats at bottom depths exceeding 2000m for Elizabeth Steffen of NOAA/PMEL.

The NOAAShip *Ronald H. Brown* arrived at Dutch Harbor, AK on 4 September at 0930ADT, where the scientists from EcoFOCI, Oregon State University, and sea vird observers from U.S. Fish and Wildlife Service departed the ship.

## APPENDIX

**Comments**

 Table 1 lists the transect ID, name, the casts included in each, as well as the direction of travel.Table 2 in the appendix summarizes the operations conducted, while Table 3 summarizes the samples collected. Table 4 is an event log of operations. It includes, in the last column, comments on conditions and some observations.

Table 1. List of CTD stations on each Transect

**Transect ID Transect Name** **CTD numbers Direction**

70M14 nut. methods expt 1 n-s

LB (full) Ledyard Bay 2-13 n-s

CKA Chukchi grid -A 14-23 s-n

CKB Chukchi grid -B 23-28 sw-ne

CKC Chukchi grid -C 28-32 nw-se

IC (DBO4) Icy Cape 48-57 n-s

WT(short) Wainwright 33-37 n-s

WT-Peard Bay NOS alongshelf 38-42 w-e

BCA Barrow Canyon-A 43-47 n-s

BC short (DBO5) Barrow Canyon 58-63 n-s

BC (DBO5) Barrow Canyon 88-94 s-n

BX (BC11-WT4) Barrow Box 94-100 ne-sw

BCB Barrow Canyon-B 64-67 n-s

BCC Barrow Canyon-C 68-74 n-s

BFB-

east of Barrow Can. Beaufort-B 84-87 ne-sw

B154 (BFA) Beaufort 154°W 75-84 n-s

WT01 Wainwright 101 1-station

WT (full) Wainwright 102-111 s-n

LB (partial) Ledyard Bay 112-118 n-s

PH (DBO3) Point Hope 119-126 ne-sw

Table 2. Summary of Gear Deployed

**Gears Used** **Tows**

20cm bongo (20BON) 8

60cm bongo (60BON) 8

Seabird SeaCAT CTD (CAT) 55

CTDB- SeaBird 9+ CTD cast with bottle samples 124

LG-CB 10"inner diameter modified Clarke Bumpas

zooplankton sampler 47

SLED- Epibenthic Tucker sled trawls 47

Seabird SeaCAT CTD (CAT) 55

TAPS-6 - Tracor Acostic Profiler with 6 frequencies 47

Bird and mammal observations 29 days

**Table 3. Summary of Samples Collected**

**Samples Collected** **Number**

SeaBird SeaCat CTD (CAT) 55

CTDB- SeaBird 9+ CTD cast with bottle samples 124

LG-CB zooplankton samples 47

Epibenthic Tucker sled samples 47

Extracted chlorophyll (Chlor) ~600

Stimulated fluorescence collected during CTD casts (Fluor) ~600

Photosynthetically Active Radiation

data collected during CTD casts (PAR) 124

Nutrient samples analyzed from CTD casts ~600

Nutrient samples analyzed from flow-through system ~54

Nutrient samples from methods experiment

analyzed at time intervals aboard ship and at PMEL

stored at 4 temperatures (filtered and unfiltered) 315

O2 samples from Niskin bottles-analyzed using Winkler method ~260

DIC/pCO2 from Niskin bottles 314

POC from Niskin bottles 286

POC from small boats 30

POC from flow-through system 310

DOC 36

DNA and RNA 38

O2/Ar from Niskin bottles 27

O2/Ar flow-through system 51

Salinity from Niskin bottles 48

Salinity from Flow-through system ~24

Chlorophyll form flow through system ~56

**Cruise Summary For FOCI Cruise 1RB15 (RB1505) Page 1**

**Date** **Time** **Alt.** **Depth**

**(GMT)** **(GMT)** **Station** **Haul** **Station** **(m)** **Latitude** **Longitude** **Gear** **Samples Collected**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2015-08-09 | 09:15 | 1 | 1 | CTD001 | 68 | 57 31.43 N | 166 48.2 W | CTDB | CHLOR |
| 2015-08-12 | 00:35 | 2 | 1 | CTD002 | 46 | 70 10.16 N | 168 7.26 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-12 | 01:49 | 2 | 2 | SLED001 | 46 | 70 9.41 N | 168 6.54 W | LG-CB | QTOWF |
| 2015-08-12 | 01:49 | 2 | 2 | SLED001 | 46 | 70 9.41 N | 168 6.54 W | SLED | QTOWF |
| 2015-08-12 | 01:49 | 2 | 2 | SLED001 | 46 | 70 9.41 N | 168 6.54 W | SLED | QTOWF |
| 2015-08-12 | 01:49 | 2 | 2 | SLED001 | 46 | 70 9.41 N | 168 6.54 W | TAPS-6 | TAPS6 |
| 2015-08-12 | 01:49 | 2 | 2 | SLED001 | 46 | 70 9.41 N | 168 6.54 W | CAT | CAT |
| 2015-08-12 | 03:31 | 3 | 1 | CTD003 | 48 | 70 3.52 N | 167 39.03 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-12 | 04:08 | 3 | 2 | SLED002 | 48 | 70 3.13 N | 167 37.95 W | LG-CB | QTOWF |
| 2015-08-12 | 04:08 | 3 | 2 | SLED002 | 48 | 70 3.13 N | 167 37.95 W | SLED | QTOWF |
| 2015-08-12 | 04:08 | 3 | 2 | SLED002 | 48 | 70 3.13 N | 167 37.95 W | SLED | QTOWF |
| 2015-08-12 | 04:08 | 3 | 2 | SLED002 | 48 | 70 3.13 N | 167 37.95 W | CAT | CAT |
| 2015-08-12 | 04:08 | 3 | 2 | SLED002 | 48 | 70 3.13 N | 167 37.95 W | TAPS-6 | TAPS6 |
| 2015-08-12 | 05:39 | 4 | 1 | CTD004 | 47 | 69 57.5 N | 167 12.8 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-12 | 06:07 | 4 | 2 | SLED003 | 48 | 69 57.21 N | 167 11.49 W | SLED | QTOWF |
| 2015-08-12 | 06:07 | 4 | 2 | SLED003 | 48 | 69 57.21 N | 167 11.49 W | LG-CB | QTOWF |
| 2015-08-12 | 06:07 | 4 | 2 | SLED003 | 48 | 69 57.21 N | 167 11.49 W | SLED | QTOWF |
| 2015-08-12 | 06:07 | 4 | 2 | SLED003 | 48 | 69 57.21 N | 167 11.49 W | CAT | CAT |
| 2015-08-12 | 06:07 | 4 | 2 | SLED003 | 48 | 69 57.21 N | 167 11.49 W | TAPS-6 | TAPS6 |
| 2015-08-12 | 07:32 | 5 | 1 | CTD005 | 47 | 69 52.95 N | 166 48.88 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-12 | 08:00 | 5 | 2 | SLED004 | 46 | 69 52.64 N | 166 47.28 W | SLED | QTOWF |
| 2015-08-12 | 08:00 | 5 | 2 | SLED004 | 46 | 69 52.64 N | 166 47.28 W | CAT | CAT |
| 2015-08-12 | 08:00 | 5 | 2 | SLED004 | 46 | 69 52.64 N | 166 47.28 W | TAPS-6 | TAPS6 |
| 2015-08-12 | 08:00 | 5 | 2 | SLED004 | 46 | 69 52.64 N | 166 47.28 W | SLED | DISCARD |
| 2015-08-12 | 08:00 | 5 | 2 | SLED004 | 46 | 69 52.64 N | 166 47.28 W | LG-CB | DISCARD |
| 2015-08-12 | 09:24 | 6 | 1 | CTD006 | 45 | 69 46.88 N | 166 26.41 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-12 | 09:52 | 6 | 2 | SLED005 | 46 | 69 46.82 N | 166 25.8 W | SLED | QTOWF |

**Cruise Summary For FOCI Cruise 1RB15 (RB1505) Page 2**

**Date** **Time** **Alt.** **Depth**

**(GMT)** **(GMT)** **Station** **Haul** **Station** **(m)** **Latitude** **Longitude** **Gear** **Samples Collected**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2015-08-12 | 09:52 | 6 | 2 | SLED005 | 46 | 69 46.82 N | 166 25.8 W | LG-CB | QTOWF |
| 2015-08-12 | 09:52 | 6 | 2 | SLED005 | 46 | 69 46.82 N | 166 25.8 W | SLED | QTOWF |
| 2015-08-12 | 09:52 | 6 | 2 | SLED005 | 46 | 69 46.82 N | 166 25.8 W | CAT | CAT |
| 2015-08-12 | 09:52 | 6 | 2 | SLED005 | 46 | 69 46.82 N | 166 25.8 W | TAPS-6 | TAPS6 |
| 2015-08-12 | 11:15 | 7 | 1 | CTD007 | 41 | 69 41.02 N | 166 4.93 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-12 | 11:43 | 7 | 2 | SLED006 | 42 | 69 40.84 N | 166 4.26 W | SLED | QTOWF |
| 2015-08-12 | 11:43 | 7 | 2 | SLED006 | 42 | 69 40.84 N | 166 4.26 W | CAT | CAT |
| 2015-08-12 | 11:43 | 7 | 2 | SLED006 | 42 | 69 40.84 N | 166 4.26 W | TAPS-6 | TAPS6 |
| 2015-08-12 | 11:43 | 7 | 2 | SLED006 | 42 | 69 40.84 N | 166 4.26 W | LG-CB | DISCARD |
| 2015-08-12 | 11:43 | 7 | 2 | SLED006 | 42 | 69 40.84 N | 166 4.26 W | SLED | DISCARD |
| 2015-08-12 | 13:02 | 8 | 1 | CTD008 | 38 | 69 34.92 N | 165 44.27 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-12 | 13:26 | 8 | 2 | SLED007 | 38 | 69 34.76 N | 165 44.72 W | SLED | QTOWF |
| 2015-08-12 | 13:26 | 8 | 2 | SLED007 | 38 | 69 34.76 N | 165 44.72 W | CAT | CAT |
| 2015-08-12 | 13:26 | 8 | 2 | SLED007 | 38 | 69 34.76 N | 165 44.72 W | TAPS-6 | TAPS6 |
| 2015-08-12 | 13:26 | 8 | 2 | SLED | 38 | 69 34.76 N | 165 44.72 W | SLED | DISCARD |
| 2015-08-12 | 13:26 | 8 | 2 | SLED | 38 | 69 34.76 N | 165 44.72 W | LG-CB | DISCARD |
| 2015-08-12 | 14:44 | 9 | 1 | CTD009 | 34 | 69 29.89 N | 165 22.11 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-12 | 15:11 | 9 | 2 | SLED008 | 35 | 69 29.6 N | 165 21.13 W | SLED | QTOWF |
| 2015-08-12 | 15:11 | 9 | 2 | SLED008 | 35 | 69 29.6 N | 165 21.13 W | CAT | CAT |
| 2015-08-12 | 15:11 | 9 | 2 | SLED008 | 35 | 69 29.6 N | 165 21.13 W | TAPS-6 | TAPS6 |
| 2015-08-12 | 15:11 | 9 | 2 | SLED008 | 35 | 69 29.6 N | 165 21.13 W | SLED | DISCARD |
| 2015-08-12 | 15:11 | 9 | 2 | SLED008 | 35 | 69 29.6 N | 165 21.13 W | LG-CB | DISCARD |
| 2015-08-12 | 16:33 | 10 | 1 | CTD010 | 31 | 69 24.5 N | 165 0.38 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-12 | 16:54 | 10 | 2 | SLED009 | 31 | 69 24.29 N | 164 59.68 W | SLED | QTOWF |
| 2015-08-12 | 16:54 | 10 | 2 | SLED009 | 31 | 69 24.29 N | 164 59.68 W | CAT | CAT |
| 2015-08-12 | 16:54 | 10 | 2 | SLED009 | 31 | 69 24.29 N | 164 59.68 W | TAPS-6 | TAPS6 |
| 2015-08-12 | 16:54 | 10 | 2 | SLED009 | 31 | 69 24.29 N | 164 59.68 W | SLED | QTOWF |
| 2015-08-12 | 16:54 | 10 | 2 | SLED009 | 31 | 69 24.29 N | 164 59.68 W | LG-CB | QTOWF |
| 2015-08-12 | 18:18 | 11 | 1 | CTD011 | 25 | 69 18.32 N | 164 37.19 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |  |

**Cruise Summary For FOCI Cruise 1RB15 (RB1505) Page 3**

**Date** **Time** **Alt.** **Depth**

**(GMT)** **(GMT)** **Station** **Haul** **Station** **(m)** **Latitude** **Longitude** **Gear** **Samples Collected**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2015-08-12 | 18:42 | 11 | 2 | SLED010 | 25 | 69 18.19 N | 164 37.01 W | SLED | QTOWF |
| 2015-08-12 | 18:42 | 11 | 2 | SLED010 | 25 | 69 18.19 N | 164 37.01 W | LG-CB | QTOWF |
| 2015-08-12 | 18:42 | 11 | 2 | SLED010 | 25 | 69 18.19 N | 164 37.01 W | SLED | QTOWF |
| 2015-08-12 | 18:42 | 11 | 2 | SLED010 | 25 | 69 18.19 N | 164 37.01 W | CAT | CAT |
| 2015-08-12 | 18:42 | 11 | 2 | SLED010 | 25 | 69 18.19 N | 164 37.01 W | TAPS-6 | TAPS6 |
| 2015-08-12 | 20:08 | 12 | 1 | CTD012 | 20 | 69 12.69 N | 164 17.66 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-12 | 20:30 | 12 | 2 | SLED011 | 19 | 69 12.56 N | 164 17.5 W | SLED | QTOWF |
| 2015-08-12 | 20:30 | 12 | 2 | SLED011 | 19 | 69 12.56 N | 164 17.5 W | LG-CB | QTOWF |
| 2015-08-12 | 20:30 | 12 | 2 | SLED011 | 19 | 69 12.56 N | 164 17.5 W | SLED | QTOWF |
| 2015-08-12 | 20:30 | 12 | 2 | SLED011 | 19 | 69 12.56 N | 164 17.5 W | CAT | CAT |
| 2015-08-12 | 20:30 | 12 | 2 | SLED011 | 19 | 69 12.56 N | 164 17.5 W | TAPS-6 | TAPS6 |
| 2015-08-12 | 21:56 | 13 | 1 | CTD013 | 16 | 69 9.38 N | 164 4.21 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-13 | 03:02 | 14 | 1 | CTD014 | 36 | 69 50.09 N | 164 55.96 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-13 | 04:44 | 15 | 1 | CTD015 | 41 | 69 59.15 N | 165 19.25 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-13 | 06:13 | 16 | 1 | CTD016 | 43 | 70 3.9 N | 165 43.99 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-13 | 07:47 | 17 | 1 | CTD017 | 46 | 70 9.4 N | 166 9.11 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-13 | 09:29 | 18 | 1 | CTD018 | 46 | 70 16.1 N | 166 36.68 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-13 | 10:58 | 19 | 1 | CTD019 | 48 | 70 21.11 N | 166 59.88 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-13 | 12:25 | 20 | 1 | CTD020 | 49 | 70 27.08 N | 167 23.8 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-13 | 14:00 | 21 | 1 | CTD021 | 47 | 70 32.68 N | 167 52.97 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-13 | 15:32 | 22 | 1 | CTD022 | 41 | 70 38.46 N | 168 17.99 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-13 | 17:10 | 23 | 1 | CTD023 | 35 | 70 44.27 N | 168 44.88 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-13 | 18:46 | 24 | 1 | CTD024 | 44 | 70 47.34 N | 168 9.98 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, |
|  |  |  |  |  |  |  |  |  | SAL |

**Cruise Summary For FOCI Cruise 1RB15 (RB1505) Page 4**

**Date** **Time** **Alt.** **Depth**

**(GMT)** **(GMT)** **Station** **Haul** **Station** **(m)** **Latitude** **Longitude** **Gear** **Samples Collected**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2015-08-13 | 20:40 | 25 | 1 | CTD025 | 53 | 70 50.12 N | 167 32.22 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-13 | 23:09 | 26 | 1 | CTD026 | 46 | 70 52.01 N | 166 56.1 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-14 | 00:05 | 27 | 1 | CTD027 | 43 | 70 54.86 N | 166 18.18 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-14 | 02:27 | 28 | 1 | CTD028 | 43 | 70 57.0 N | 165 42.24 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-14 | 04:04 | 29 | 1 | CTD029 | 42 | 70 48.8 N | 165 15.83 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-14 | 05:46 | 30 | 1 | CTD030 | 45 | 70 41.28 N | 164 43.16 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-14 | 07:43 | 31 | 1 | CTD031 | 45 | 70 31.9 N | 164 9.88 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-14 | 10:04 | 32 | 1 | CTD032 | 34 | 70 21.71 N | 163 29.7 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-15 | 08:27 | 33 | 1 | CTD033 | 48 | 71 21.01 N | 160 51.22 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-15 | 09:51 | 34 | 1 | CTD034 | 50 | 71 13.48 N | 160 32.56 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR |
| 2015-08-15 | 11:06 | 35 | 1 | CTD035 | 57 | 71 7.36 N | 160 16.32 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-15 | 12:40 | 36 | 1 | CTD036 | 68 | 70 59.0 N | 159 54.42 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR |
| 2015-08-15 | 14:06 | 37 | 1 | CTD037 | 31 | 70 51.6 N | 159 39.68 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-16 | 08:24 | 38 | 1 | CTD043 | 65 | 71 17.44 N | 158 56.4 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR |
| 2015-08-16 | 09:28 | 39 | 1 | CTD044 | 112 | 71 14.1 N | 158 47.97 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR |
| 2015-08-16 | 10:29 | 40 | 1 | CTD045 | 106 | 71 12.39 N | 158 43.97 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-16 | 11:35 | 41 | 1 | CTD046 | 77 | 71 9.99 N | 158 36.79 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR |
| 2015-08-16 | 12:43 | 42 | 1 | CTD047 | 35 | 71 6.53 N | 158 29.55 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-17 | 03:42 | 43 | 1 | CTD048 | 38 | 70 36.09 N | 162 36.18 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-17 | 04:30 | 43 | 2 | SLED012 | 38 | 70 36.22 N | 162 35.09 W | TAPS-6 | TAPS6 |
| 2015-08-17 | 04:30 | 43 | 2 | SLED012 | 38 | 70 36.22 N | 162 35.09 W | LG-CB | DISCARD |
| 2015-08-17 | 04:30 | 43 | 2 | SLED012 | 38 | 70 36.22 N | 162 35.09 W | CAT | CAT |
| 2015-08-17 | 04:30 | 43 | 2 | SLED012 | 38 | 70 36.22 N | 162 35.09 W | SLED | DISCARD |
| 2015-08-17 | 04:30 | 43 | 2 | SLED012 | 38 | 70 36.22 N | 162 35.09 W | SLED | QTOWF |
| 2015-08-17 | 06:07 | 44 | 1 | CTD049 | 42 | 70 43.32 N | 162 51.04 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-17 | 06:42 | 44 | 2 | SLED013 | 41 | 70 43.49 N | 162 49.07 W | LG-CB | QTOWF |
| 2015-08-17 | 06:42 | 44 | 2 | SLED013 | 41 | 70 43.49 N | 162 49.07 W | CAT | CAT |
| 2015-08-17 | 06:42 | 44 | 2 | SLED013 | 41 | 70 43.49 N | 162 49.07 W | SLED | QTOWF |
| 2015-08-17 | 06:42 | 44 | 2 | SLED013 | 41 | 70 43.49 N | 162 49.07 W | SLED | QTOWF |
| 2015-08-17 | 06:42 | 44 | 2 | SLED013 | 41 | 70 43.49 N | 162 49.07 W | TAPS-6 | TAPS6 |
| 2015-08-17 | 08:29 | 45 | 1 | CTD050 | 45 | 70 51.17 N | 163 10.67 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |  |

**Cruise Summary For FOCI Cruise 1RB15 (RB1505) Page 5**

**Date** **Time** **Alt.** **Depth**

**(GMT)** **(GMT)** **Station** **Haul** **Station** **(m)** **Latitude** **Longitude** **Gear** **Samples Collected**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2015-08-17 | 08:59 | 45 | 2 | SLED014 | 45 | 70 51.27 N | 163 9.64 W | SLED | QTOWF |
| 2015-08-17 | 08:59 | 45 | 2 | SLED014 | 45 | 70 51.27 N | 163 9.64 W | SLED | QTOWF |
| 2015-08-17 | 08:59 | 45 | 2 | SLED014 | 45 | 70 51.27 N | 163 9.64 W | LG-CB | QTOWF |
| 2015-08-17 | 08:59 | 45 | 2 | SLED014 | 45 | 70 51.27 N | 163 9.64 W | CAT | CAT |
| 2015-08-17 | 08:59 | 45 | 2 | SLED014 | 45 | 70 51.27 N | 163 9.64 W | TAPS-6 | TAPS6 |
| 2015-08-17 | 11:09 | 46 | 1 | CTD051 | 46 | 70 58.54 N | 163 33.6 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-17 | 12:25 | 46 | 2 | SLED015 | 1135 | 70 58.62 N | 163 32.84 W | LG-CB | QTOWF |
| 2015-08-17 | 12:25 | 46 | 2 | SLED015 | 1135 | 70 58.62 N | 163 32.84 W | CAT | CAT |
| 2015-08-17 | 11:35 | 46 | 2 | SLED015 | 45 | 70 58.62 N | 163 32.84 W | SLED | QTOWF, AMGEN |
| 2015-08-17 | 12:25 | 46 | 2 | SLED015 | 1135 | 70 58.62 N | 163 32.84 W | SLED | QTOWF, AMGEN |
| 2015-08-17 | 12:25 | 46 | 2 | SLED015 | 1135 | 70 58.62 N | 163 32.84 W | TAPS-6 | TAPS6 |
| 2015-08-17 | 13:03 | 47 | 1 | CTD052 | 53 | 71 5.28 N | 163 47.81 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-17 | 13:29 | 47 | 2 | SLED016 | 43 | 71 5.3 N | 163 47.6 W | SLED | QTOWF |
| 2015-08-17 | 13:29 | 47 | 2 | SLED016 | 43 | 71 5.3 N | 163 47.6 W | SLED | QTOWF |
| 2015-08-17 | 13:29 | 47 | 2 | SLED016 | 43 | 71 5.3 N | 163 47.6 W | CAT | CAT |
| 2015-08-17 | 13:29 | 47 | 2 | SLED016 | 43 | 71 5.3 N | 163 47.6 W | LG-CB | QTOWF |
| 2015-08-17 | 13:29 | 47 | 2 | SLED016 | 43 | 71 5.3 N | 163 47.6 W | TAPS-6 | TAPS6 |
| 2015-08-17 | 15:11 | 48 | 1 | CTD053 | 44 | 71 11.94 N | 164 12.04 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-17 | 15:40 | 48 | 2 | SLED017 | 44 | 71 11.51 N | 164 12.05 W | SLED | QTOWF |
| 2015-08-17 | 15:40 | 48 | 2 | SLED017 | 44 | 71 11.51 N | 164 12.05 W | SLED | QTOWF |
| 2015-08-17 | 15:40 | 48 | 2 | SLED017 | 44 | 71 11.51 N | 164 12.05 W | LG-CB | QTOWF |
| 2015-08-17 | 15:40 | 48 | 2 | SLED017 | 44 | 71 11.51 N | 164 12.05 W | CAT | CAT |
| 2015-08-17 | 15:40 | 48 | 2 | SLED017 | 44 | 71 11.51 N | 164 12.05 W | TAPS-6 | TAPS6 |
| 2015-08-17 | 17:53 | 49 | 1 | CTD054 | 44 | 71 20.37 N | 164 36.44 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-17 | 18:21 | 49 | 2 | SLED018 | 44 | 71 20.43 N | 164 36.07 W | SLED | QTOWF |
| 2015-08-17 | 18:21 | 49 | 2 | SLED018 | 44 | 71 20.43 N | 164 36.07 W | SLED | QTOWF |
| 2015-08-17 | 18:21 | 49 | 2 | SLED018 | 44 | 71 20.43 N | 164 36.07 W | LG-CB | QTOWF |
| 2015-08-17 | 18:21 | 49 | 2 | SLED018 | 44 | 71 20.43 N | 164 36.07 W | CAT | CAT |
| 2015-08-17 | 18:21 | 49 | 2 | SLED018 | 44 | 71 20.43 N | 164 36.07 W | TAPS-6 | TAPS6 |
| 2015-08-17 | 20:24 | 50 | 1 | CTD055 | 42 | 71 27.09 N | 164 54.82 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-17 | 20:45 | 50 | 2 | SLED019 | 42 | 71 27.19 N | 164 54.54 W | SLED | QTOWF |
| 2015-08-17 | 20:45 | 50 | 2 | SLED019 | 42 | 71 27.19 N | 164 54.54 W | SLED | QTOWF |

**Cruise Summary For FOCI Cruise 1RB15 (RB1505) Page 6**

**Date** **Time** **Alt.** **Depth**

**(GMT)** **(GMT)** **Station** **Haul** **Station** **(m)** **Latitude** **Longitude** **Gear** **Samples Collected**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2015-08-17 | 20:45 | 50 | 2 | SLED019 | 42 | 71 27.19 N | 164 54.54 W | CAT | CAT |
| 2015-08-17 | 20:45 | 50 | 2 | SLED019 | 42 | 71 27.19 N | 164 54.54 W | TAPS-6 | TAPS6 |
| 2015-08-17 | 22:53 | 51 | 1 | CTD056 | 42 | 71 36.25 N | 165 18.08 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-17 | 23:20 | 51 | 2 | SLED020 | 42 | 71 36.32 N | 165 17.5 W | SLED | QTOWF |
| 2015-08-17 | 23:20 | 51 | 2 | SLED020 | 42 | 71 36.32 N | 165 17.5 W | SLED | QTOWF |
| 2015-08-17 | 23:20 | 51 | 2 | SLED020 | 42 | 71 36.32 N | 165 17.5 W | LG-CB | QTOWF |
| 2015-08-17 | 23:20 | 51 | 2 | SLED020 | 42 | 71 36.32 N | 165 17.5 W | CAT | CAT |
| 2015-08-17 | 23:20 | 51 | 2 | SLED020 | 42 | 71 36.32 N | 165 17.5 W | TAPS-6 | TAPS6 |
| 2015-08-18 | 01:01 | 52 | 1 | CTD057 | 42 | 71 42.46 N | 165 36.15 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-18 | 01:28 | 52 | 2 | SLED021 | 42 | 71 42.6 N | 165 35.2 W | SLED | QTOWF |
| 2015-08-18 | 01:28 | 52 | 2 | SLED021 | 42 | 71 42.6 N | 165 35.2 W | SLED | QTOWF |
| 2015-08-18 | 01:28 | 52 | 2 | SLED021 | 42 | 71 42.6 N | 165 35.2 W | TAPS-6 | TAPS6 |
| 2015-08-18 | 01:28 | 52 | 2 | SLED021 | 42 | 71 42.6 N | 165 35.2 W | CAT | CAT |
| 2015-08-18 | 01:28 | 52 | 2 | SLED021 | 42 | 71 42.6 N | 165 35.2 W | LG-CB | QTOWF |
| 2015-08-19 | 06:46 | 53 | 1 | CTD058 | 82 | 71 29.92 N | 157 42.17 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR |
| 2015-08-19 | 07:49 | 54 | 1 | CTD059 | 108 | 71 27.48 N | 157 35.99 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-19 | 08:55 | 55 | 1 | CTD060 | 128 | 71 24.89 N | 157 30.38 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR |
| 2015-08-19 | 10:01 | 56 | 1 | CTD061 | 114 | 71 22.48 N | 157 26.48 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-19 | 11:01 | 57 | 1 | CTD062 | 95 | 71 20.35 N | 157 20.94 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR |
| 2015-08-19 | 12:10 | 58 | 1 | CTD063 | 46 | 71 14.76 N | 157 9.91 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-20 | 09:54 | 59 | 1 | CTD064 | 99 | 71 43.76 N | 156 11.25 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR |
| 2015-08-20 | 11:14 | 60 | 1 | CTD065 | 115 | 71 39.99 N | 156 3.58 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-20 | 12:35 | 61 | 1 | CTD066 | 217 | 71 35.7 N | 155 54.93 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR |
| 2015-08-20 | 14:13 | 62 | 1 | CTD067 | 131 | 71 32.21 N | 155 51.86 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-20 | 14:13 | 62 | 2 | CTD067 | 131 | 71 32.21 N | 155 51.86 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-21 | 06:22 | 63 | 1 | CTD068 | 91 | 71 50.77 N | 155 57.22 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-21 | 07:35 | 64 | 1 | CTD069 | 101 | 71 48.76 N | 155 44.07 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR |
| 2015-08-21 | 09:00 | 65 | 1 | CTD070 | 141 | 71 46.91 N | 155 28.9 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-21 | 10:23 | 66 | 1 | CTD071 | 225 | 71 44.63 N | 155 17.57 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR |
| 2015-08-21 | 11:30 | 67 | 1 | CTD072 | 272 | 71 43.52 N | 155 9.96 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-21 | 12:54 | 68 | 1 | CTD073 | 145 | 71 42.1 N | 155 0.0 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR |
| 2015-08-21 | 14:03 | 69 | 1 | CTD074 | 61 | 71 40.34 N | 154 46.66 W | CTDB | PAR, CTD, NUT, OXYGEN, FLUOR, SAL |

**Cruise Summary For FOCI Cruise 1RB15 (RB1505) Page 7**

**Date** **Time** **Alt.** **Depth**

**(GMT)** **(GMT)** **Station** **Haul** **Station** **(m)** **Latitude** **Longitude** **Gear** **Samples Collected**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2015-08-22 | 07:35 | 70 | 1 | CTD075 | 1531 | 71 58.57 N | 153 22.25 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-22 | 09:34 | 70 | 2 | BON001 | 1322 | 71 59.77 N | 153 29.76 W | 60BON | QTOWF |
| 2015-08-22 | 09:34 | 70 | 2 | BON001 | 1322 | 71 59.77 N | 153 29.76 W | 60BON | DISCARD, AMGEN |
| 2015-08-22 | 09:34 | 70 | 2 | BON001 | 1322 | 71 59.77 N | 153 29.76 W | 20BON | QTOWF |
| 2015-08-22 | 09:34 | 70 | 2 | BON001 | 1322 | 71 59.77 N | 153 29.76 W | CAT | CAT |
| 2015-08-22 | 11:35 | 71 | 1 | CTD076 | 684 | 71 53.95 N | 153 27.12 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-22 | 12:46 | 71 | 2 | BON002 | 873 | 71 54.0 N | 153 25.8 W | CAT | CAT |
| 2015-08-22 | 12:46 | 71 | 2 | BON002 | 873 | 71 54.0 N | 153 25.8 W | 20BON | QTOWF |
| 2015-08-22 | 12:46 | 71 | 2 | BON002 | 873 | 71 54.0 N | 153 25.8 W | 60BON | QTOWF |
| 2015-08-22 | 14:18 | 72 | 1 | CTD077 | 175 | 71 49.13 N | 153 34.93 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-22 | 16:14 | 73 | 1 | CTD078 | 52 | 71 42.56 N | 153 45.5 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-22 | 16:50 | 73 | 2 | BON003 | 52 | 71 42.59 N | 153 45.18 W | 60BON | QTOWF |
| 2015-08-22 | 16:50 | 73 | 2 | BON003 | 52 | 71 42.59 N | 153 45.18 W | 20BON | QTOWF |
| 2015-08-22 | 16:50 | 73 | 2 | BON003 | 52 | 71 42.59 N | 153 45.18 W | CAT | CAT |
| 2015-08-22 | 18:02 | 74 | 1 | CTD079 | 47 | 71 36.13 N | 153 57.5 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-22 | 19:12 | 75 | 1 | CTD080 | 46 | 71 30.2 N | 154 6.86 W | CTDB | PAR, CAT, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-22 | 19:37 | 75 | 2 | BON004 | 46 | 71 30.32 N | 154 6.44 W | 20BON | QTOWF |
| 2015-08-22 | 19:37 | 75 | 2 | BON004 | 46 | 71 30.32 N | 154 6.44 W | 60BON | QTOWF |
| 2015-08-22 | 19:37 | 75 | 2 | BON004 | 46 | 71 30.32 N | 154 6.44 W | 60BON | DISCARD, AMGEN |
| 2015-08-22 | 19:37 | 75 | 2 | BON004 | 46 | 71 30.32 N | 154 6.44 W | CAT | CAT |
| 2015-08-22 | 21:22 | 76 | 1 | CTD081 | 37 | 71 25.68 N | 154 14.84 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-22 | 22:12 | 76 | 2 | BON005 | 38 | 71 25.91 N | 154 16.11 W | 60BON | QTOWF |
| 2015-08-22 | 22:12 | 76 | 2 | BON005 | 38 | 71 25.91 N | 154 16.11 W | CAT | CAT |
| 2015-08-22 | 22:12 | 76 | 2 | BON005 | 38 | 71 25.91 N | 154 16.11 W | 60BON | DISCARD, AMGEN |
| 2015-08-22 | 22:12 | 76 | 2 | BON005 | 38 | 71 25.91 N | 154 16.11 W | 20BON | QTOWF |
| 2015-08-22 | 23:53 | 77 | 1 | CTD082 | 23 | 71 19.0 N | 154 25.41 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-23 | 00:11 | 77 | 2 | BON006 | 25 | 71 18.99 N | 154 24.98 W | 60BON | QTOWF |
| 2015-08-23 | 00:11 | 77 | 2 | BON006 | 25 | 71 18.99 N | 154 24.98 W | 60BON | DISCARD, AMGEN |
| 2015-08-23 | 00:11 | 77 | 2 | BON006 | 25 | 71 18.99 N | 154 24.98 W | 20BON | QTOWF |
| 2015-08-23 | 00:11 | 77 | 2 | BON006 | 25 | 71 18.99 N | 154 24.98 W | CAT | CAT |
| 2015-08-23 | 01:27 | 78 | 1 | CTD083 | 19 | 71 13.97 N | 154 33.22 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-24 | 08:51 | 79 | 1 | CTD084 | 53 | 71 40.26 N | 154 34.73 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-24 | 09:19 | 79 | 2 | BON007 | 51 | 71 40.21 N | 154 34.08 W | 20BON | QTOWF |

**Cruise Summary For FOCI Cruise 1RB15 (RB1505) Page 8**

**Date** **Time** **Alt.** **Depth**

**(GMT)** **(GMT)** **Station** **Haul** **Station** **(m)** **Latitude** **Longitude** **Gear** **Samples Collected**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2015-08-24 | 09:19 | 79 | 2 | BON007 | 51 | | | 71 40.21 N | 154 34.08 W | 60BON | QTOWF | |
| 2015-08-24 | 09:19 | 79 | 2 | BON007 | 51 | | | 71 40.21 N | 154 34.08 W | 60BON | DISCARD, AMGEN | |
| 2015-08-24 | 09:59 | 79 | 2 | BON007 | 51 | | | 71 40.21 N | 154 34.08 W | CAT | CAT | |
| 2015-08-24 | 11:15 | 80 | 1 | CTD085 | 35 | | | 71 34.23 N | 154 46.17 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR | |
| 2015-08-24 | 11:34 | 80 | 2 | BON008 | 35 | | | 71 34.0 N | 154 46.0 W | 20BON | QTOWF | |
| 2015-08-24 | 11:34 | 80 | 2 | BON008 | 35 | | | 71 34.0 N | 154 46.0 W | 60BON | QTOWF | |
| 2015-08-24 | 11:34 | 80 | 2 | BON008 | 35 | | | 71 34.0 N | 154 46.0 W | CAT | CAT | |
| 2015-08-24 | 12:59 | 81 | 1 | CTD086 | 27 | | | 71 27.76 N | 154 55.05 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR | |
| 2015-08-24 | 14:30 | 82 | 1 | CTD087 | 21 | | | 71 22.08 N | 155 6.95 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL | |
| 2015-08-25 | 21:25 | 83 | 1 | CTD088 | 47 | | | 71 14.81 N | 157 9.93 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR | |
| 2015-08-25 | 22:29 | 83 | 2 | SLED022 | 45 | | | 71 14.76 N | 157 9.37 W | SLED | QTOWF | |
| 2015-08-25 | 22:29 | 83 | 2 | SLED022 | 45 | | | 71 14.76 N | 157 9.37 W | LG-CB | QTOWF | |
| 2015-08-25 | 22:29 | 83 | 2 | SLED022 | 45 | | | 71 14.76 N | 157 9.37 W | CAT | CAT | |
| 2015-08-25 | 22:29 | 83 | 2 | SLED022 | 45 | | | 71 14.76 N | 157 9.37 W | TAPS-6 | TAPS6 | |
| 2015-08-25 | 23:38 | 84 | 1 | CTD089 | 95 | | | 71 20.81 N | 157 20.82 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR | |
| 2015-08-26 | 00:13 | 84 | 2 | SLED023 | 95 | | | 71 20.16 N | 157 20.93 W | CAT | CAT | |
| 2015-08-26 | 00:13 | 84 | 2 | SLED023 | 95 | | | 71 20.16 N | 157 20.93 W | SLED | QTOWF | |
| 2015-08-26 | 00:13 | 84 | 2 | SLED023 | 95 | | | 71 20.16 N | 157 20.93 W | LG-CB | QTOWF | |
| 2015-08-26 | 00:13 | 84 | 2 | SLED023 | 95 | | | 71 20.16 N | 157 20.93 W | TAPS-6 | TAPS6 | |
| 2015-08-26 | 02:01 | 85 | 1 | CTD090 | 124 | | | 71 24.8 N | 157 30.33 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR | |
| 2015-08-26 | 02:40 | 85 | 2 | SLED024 | 122 | | | 71 24.55 N | 157 30.49 W | SLED | QTOWF | |
| 2015-08-26 | 02:40 | 85 | 2 | SLED024 | 122 | | | 71 24.55 N | 157 30.49 W | LG-CB | QTOWF | |
| 2015-08-26 | 02:40 | 85 | 2 | SLED024 | 122 | | | 71 24.55 N | 157 30.49 W | CAT | CAT | |
| 2015-08-26 | 02:40 | 85 | 2 | SLED024 | 122 | | | 71 24.55 N | 157 30.49 W | TAPS-6 | TAPS6 | |
| 2015-08-26 | 04:07 | 86 | 1 | CTD091 | 81 | | | 71 29.99 N | 157 42.18 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL | |
| 2015-08-26 | 04:38 | 86 | 2 | SLED025 | 91 | | | 71 29.83 N | 157 42.15 W | LG-CB | QTOWF | |
| 2015-08-26 | 04:38 | 86 | 2 | SLED025 | 91 | | | 71 29.83 N | 157 42.15 W | SLED | QTOWF | |
| 2015-08-26 | 04:38 | 86 | 2 | SLED025 | 91 | | | 71 29.83 N | 157 42.15 W | TAPS-6 | TAPS6 | |
| 2015-08-26 | 04:38 | 86 | 2 | SLED025 | 91 | | | 71 29.83 N | 157 42.15 W | CAT | CAT | |
| 2015-08-26 | 05:41 | 87 | 1 | CTD092 | 65 | | | 71 34.56 N | 157 50.42 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR | |
| 2015-08-26 | 06:18 | 87 | 2 | SLED026 | 65 | | | 71 34.29 N | 157 50.54 W | LG-CB | QTOWF | |
|  |  |  |  |  | |  |  | |  |  |  |
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**Cruise Summary For FOCI Cruise 1RB15 (RB1505) Page 9**

**Date** **Time** **Alt.** **Depth**

**(GMT)** **(GMT)** **Station** **Haul** **Station** **(m)** **Latitude** **Longitude** **Gear** **Samples Collected**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2015-08-26 | 06:18 | 87 | 2 | SLED026 | 65 | 71 34.29 N | 157 50.54 W | SLED | QTOWF |
| 2015-08-26 | 06:18 | 87 | 2 | SLED026 | 65 | 71 34.29 N | 157 50.54 W | CAT | CAT |
| 2015-08-26 | 06:18 | 87 | 2 | SLED026 | 65 | 71 34.29 N | 157 50.54 W | TAPS-6 | TAPS6 |
| 2015-08-26 | 07:45 | 88 | 1 | CTD093 | 61 | 71 39.89 N | 158 3.92 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-26 | 08:13 | 88 | 2 | SLED027 | 61 | 71 39.79 N | 158 3.93 W | SLED | QTOWF |
| 2015-08-26 | 08:13 | 88 | 2 | SLED027 | 61 | 71 39.79 N | 158 3.93 W | LG-CB | QTOWF |
| 2015-08-26 | 08:13 | 88 | 2 | SLED027 | 61 | 71 39.79 N | 158 3.93 W | CAT | CAT |
| 2015-08-26 | 08:13 | 88 | 2 | SLED027 | 61 | 71 39.79 N | 158 3.93 W | TAPS-6 | TAPS6 |
| 2015-08-26 | 09:22 | 89 | 1 | CTD094 | 55 | 71 44.99 N | 158 11.08 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-26 | 09:50 | 89 | 2 | SLED028 | 56 | 71 44.8 N | 158 11.02 W | SLED | QTOWF |
| 2015-08-26 | 09:50 | 89 | 2 | SLED028 | 56 | 71 44.8 N | 158 11.02 W | CAT | CAT |
| 2015-08-26 | 09:50 | 89 | 2 | SLED028 | 56 | 71 44.8 N | 158 11.02 W | LG-CB | QTOWF |
| 2015-08-26 | 09:50 | 89 | 2 | SLED028 | 56 | 71 44.8 N | 158 11.02 W | TAPS-6 | TAPS6 |
| 2015-08-26 | 11:29 | 90 | 1 | CTD095 | 57 | 71 42.79 N | 158 37.99 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-26 | 13:30 | 91 | 1 | CTD086 | 53 | 71 37.01 N | 159 0.25 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-26 | 15:53 | 92 | 1 | CTD097 | 52 | 71 29.64 N | 159 21.81 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-26 | 18:17 | 93 | 1 | CTD098 | 50 | 71 24.62 N | 159 45.05 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-26 | 20:08 | 94 | 1 | CTD099 | 54 | 71 17.76 N | 160 7.78 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-26 | 21:52 | 95 | 1 | CTD100 | 51 | 71 13.44 N | 160 32.62 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-27 | 01:13 | 96 | 1 | CTD101 | 32 | 70 51.44 N | 159 40.11 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-27 | 01:42 | 96 | 2 | SLED029 | 33 | 70 51.32 N | 159 41.04 W | SLED | QTOWF |
| 2015-08-27 | 01:42 | 96 | 2 | SLED029 | 33 | 70 51.32 N | 159 41.04 W | LG-CB | QTOWF |
| 2015-08-27 | 01:42 | 96 | 2 | SLED029 | 33 | 70 51.32 N | 159 41.04 W | SLED | QTOWF |
| 2015-08-27 | 01:42 | 96 | 2 | SLED029 | 33 | 70 51.32 N | 159 41.04 W | CAT | CAT |
| 2015-08-27 | 01:42 | 96 | 2 | SLED029 | 33 | 70 51.32 N | 159 41.04 W | TAPS-6 | TAPS6 |
| 2015-08-29 | 17:44 | 97 | 1 | CTD102 | 31 | 70 51.49 N | 159 39.82 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-29 | 19:14 | 98 | 1 | CTD103 | 68 | 70 58.91 N | 159 54.14 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-29 | 19:50 | 98 | 2 | SLED030 | 68 | 70 59.05 N | 159 54.57 W | SLED | QTOWF |
| 2015-08-29 | 19:50 | 98 | 2 | SLED030 | 68 | 70 59.05 N | 159 54.57 W | LG-CB | QTOWF |
| 2015-08-29 | 19:50 | 98 | 2 | SLED030 | 68 | 70 59.05 N | 159 54.57 W | CAT | CAT |
| 2015-08-29 | 19:50 | 98 | 2 | SLED030 | 68 | 70 59.05 N | 159 54.57 W | SLED | QTOWF |

**Cruise Summary For FOCI Cruise 1RB15 (RB1505) ) Page 10**

**Date** **Time** **Alt.** **Depth**

**(GMT)** **(GMT)** **Station** **Haul** **Station** **(m)** **Latitude** **Longitude** **Gear** **Samples Collected**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2015-08-29 | 21:48 | 99 | 1 | CTD104 | 62 | 71 7.3 N | 160 16.61 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2012-08-30 | 22:26 | 99 | 2 | SLED031 | 55 | 71 7.4 N | 160 17.35 W | LG-CB | QTOWF |
| 2012-08-30 | 22:26 | 99 | 2 | SLED031 | 55 | 71 7.4 N | 160 17.35 W | SLED | QTOWF |
| 2012-08-30 | 22:26 | 99 | 2 | SLED031 | 55 | 71 7.4 N | 160 17.35 W | SLED | QTOWF |
| 2012-08-30 | 22:26 | 99 | 2 | SLED031 | 55 | 71 7.4 N | 160 17.35 W | CAT | CAT |
| 2012-08-30 | 22:26 | 99 | 2 | SLED031 | 55 | 71 7.4 N | 160 17.35 W | TAPS-6 | TAPS6 |
| 2015-08-29 | 23:47 | 100 | 1 | CTD105 | 51 | 71 13.48 N | 160 32.58 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-30 | 00:15 | 100 | 2 | SLED032 | 52 | 71 13.55 N | 160 33.15 W | SLED | QTOWF |
| 2015-08-30 | 00:15 | 100 | 2 | SLED032 | 52 | 71 13.55 N | 160 33.15 W | SLED | QTOWF |
| 2015-08-30 | 00:15 | 100 | 2 | SLED032 | 52 | 71 13.55 N | 160 33.15 W | LG-CB | QTOWF |
| 2015-08-30 | 00:15 | 100 | 2 | SLED032 | 52 | 71 13.55 N | 160 33.15 W | CAT | CAT |
| 2015-08-30 | 00:15 | 100 | 2 | SLED032 | 52 | 71 13.55 N | 160 33.15 W | TAPS-6 | TAPS6 |
| 2015-08-30 | 01:46 | 101 | 1 | CTD106 | 47 | 71 20.95 N | 160 50.68 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-30 | 02:15 | 101 | 2 | SLED033 | 48 | 71 21.13 N | 160 51.66 W | LG-CB | QTOWF |
| 2015-08-30 | 02:15 | 101 | 2 | SLED033 | 48 | 71 21.13 N | 160 51.66 W | SLED | QTOWF |
| 2015-08-30 | 02:15 | 101 | 2 | SLED033 | 48 | 71 21.13 N | 160 51.66 W | SLED | QTOWF |
| 2015-08-30 | 02:15 | 101 | 2 | SLED033 | 48 | 71 21.13 N | 160 51.66 W | CAT | CAT |
| 2015-08-30 | 02:15 | 101 | 2 | SLED033 | 48 | 71 21.13 N | 160 51.66 W | TAPS-6 | TAPS6 |
| 2015-08-30 | 04:13 | 102 | 1 | CTD107 | 47 | 71 31.47 N | 161 10.54 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-30 | 04:39 | 102 | 2 | SLED034 | 48 | 71 31.64 N | 161 11.22 W | SLED | QTOWF |
| 2015-08-30 | 04:39 | 102 | 2 | SLED034 | 48 | 71 31.64 N | 161 11.22 W | SLED | QTOWF |
| 2015-08-30 | 04:39 | 102 | 2 | SLED034 | 48 | 71 31.64 N | 161 11.22 W | LG-CB | QTOWF |
| 2015-08-30 | 04:39 | 102 | 2 | SLED034 | 48 | 71 31.64 N | 161 11.22 W | CAT | CAT |
| 2015-08-30 | 04:39 | 102 | 2 | SLED034 | 48 | 71 31.64 N | 161 11.22 W | TAPS-6 | TAPS6 |
| 2015-08-30 | 06:23 | 103 | 1 | CTD108 | 45 | 71 38.07 N | 161 32.86 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-30 | 06:54 | 103 | 2 | SLED035 | 46 | 71 38.27 N | 161 34.25 W | SLED | QTOWF |
| 2015-08-30 | 06:54 | 103 | 2 | SLED035 | 46 | 71 38.27 N | 161 34.25 W | SLED | QTOWF |
| 2015-08-30 | 06:54 | 103 | 2 | SLED035 | 46 | 71 38.27 N | 161 34.25 W | LG-CB | QTOWF |
| 2015-08-30 | 06:54 | 103 | 2 | SLED035 | 46 | 71 38.27 N | 161 34.25 W | CAT | CAT |
| 2015-08-30 | 06:54 | 103 | 2 | SLED035 | 46 | 71 38.27 N | 161 34.25 W | TAPS-6 | TAPS6 |
| 2015-08-30 | 08:22 | 104 | 1 | CTD109 | 43 | 71 45.67 N | 161 49.84 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-30 | 08:55 | 104 | 2 | SLED036 | 43 | 71 46.63 N | 161 50.43 W | SLED | QTOWF |
| 2015-08-30 | 08:55 | 104 | 2 | SLED036 | 43 | 71 46.63 N | 161 50.43 W | SLED | QTOWF |
| 2015-08-30 | 08:55 | 104 | 2 | SLED036 | 43 | 71 46.36 N | 161 50.43 W | CAT | CAT |
| 2015-09-30 | 08:55 | 104 | 2 | SLED036 | 43 | 71 46.36 N | 161 50.43 W | LG-CB | QTOWF |

**Cruise Summary For FOCI Cruise 1RB15 (RB1505) Page 11**

**Date** **Time** **Alt.** **Depth**

**(GMT)** **(GMT)** **Station** **Haul** **Station** **(m)** **Latitude** **Longitude** **Gear** **Samples Collected**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2015-08-30 | 08:55 | 104 | 2 | SLED036 | 43 | 71 46.36 N | 161 50.43 W | TAPS-6 | TAPS6 |
| 2015-08-30 | 10:33 | 105 | 1 | CTD110 | 35 | 71 55.67 N | 162 11.16 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-30 | 10:54 | 105 | 2 | SLED037 | 35 | 71 55.72 N | 162 10.8 W | SLED | QTOWF |
| 2015-08-30 | 10:54 | 105 | 2 | SLED037 | 35 | 71 55.72 N | 162 10.8 W | LG-CB | QTOWF |
| 2015-08-30 | 10:54 | 105 | 2 | SLED037 | 35 | 71 55.72 N | 162 10.8 W | CAT | CAT |
| 2015-08-30 | 10:54 | 105 | 2 | SLED037 | 35 | 71 55.72 N | 162 10.8 W | SLED | QTOWF, AMGEN |
| 2015-08-30 | 10:54 | 105 | 2 | SLED037 | 35 | 71 55.72 N | 162 10.8 W | TAPS-6 | TAPS6 |
| 2015-08-30 | 12:22 | 106 | 1 | CTD111 | 32 | 72 2.88 N | 162 26.11 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-30 | 12:41 | 106 | 2 | SLED038 | 33 | 72 2.92 N | 162 25.81 W | SLED | QTOWF, AMGEN |
| 2015-08-30 | 12:41 | 106 | 2 | SLED038 | 33 | 72 2.92 N | 162 25.81 W | SLED | QTOWF |
| 2015-08-30 | 12:41 | 106 | 2 | SLED038 | 33 | 72 2.92 N | 162 25.81 W | LG-CB | QTOWF |
| 2015-08-30 | 12:41 | 106 | 2 | SLED038 | 33 | 72 2.92 N | 162 25.81 W | CAT | CAT |
| 2015-08-30 | 12:41 | 106 | 2 | SLED038 | 33 | 72 2.92 N | 162 25.81 W | TAPS-6 | TAPS6 |
| 2015-08-31 | 02:45 | 107 | 1 | CTD112 | 46 | 69 52.88 N | 166 48.88 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-31 | 03:13 | 107 | 2 | SLED039 | 46 | 69 53.12 N | 166 49.19 W | SLED | QTOWF |
| 2015-08-31 | 03:13 | 107 | 2 | SLED039 | 46 | 69 53.12 N | 166 49.19 W | SLED | QTOWF |
| 2015-08-31 | 03:13 | 107 | 2 | SLED039 | 46 | 69 53.12 N | 166 49.19 W | LG-CB | QTOWF |
| 2015-08-31 | 03:13 | 107 | 2 | SLED039 | 46 | 69 53.12 N | 166 49.19 W | CAT | CAT |
| 2015-08-31 | 03:13 | 107 | 2 | SLED039 | 46 | 69 53.12 N | 166 49.19 W | TAPS-6 | TAPS6 |
| 2015-08-31 | 04:53 | 108 | 1 | CTD113 | 45 | 69 46.82 N | 166 26.32 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-31 | 05:19 | 108 | 2 | SLED040 | 44 | 69 47.09 N | 166 26.77 W | SLED | QTOWF |
| 2015-08-31 | 05:19 | 108 | 2 | SLED040 | 44 | 69 47.09 N | 166 26.77 W | SLED | QTOWF |
| 2015-08-31 | 05:19 | 108 | 2 | SLED040 | 44 | 69 47.09 N | 166 26.77 W | LG-CB | QTOWF |
| 2015-08-31 | 05:19 | 108 | 2 | SLED040 | 44 | 69 47.09 N | 166 26.77 W | CAT | CAT |
| 2015-08-31 | 05:19 | 108 | 2 | SLED040 | 44 | 69 47.09 N | 166 26.77 W | TAPS-6 | TAPS6 |
| 2015-08-31 | 06:51 | 109 | 1 | CTD114 | 41 | 69 41.36 N | 166 4.97 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-31 | 07:17 | 109 | 2 | SLED041 | 41 | 69 41.66 N | 166 5.47 W | SLED | QTOWF |
| 2015-08-31 | 07:17 | 109 | 2 | SLED041 | 41 | 69 41.66 N | 166 5.47 W | LG-CB | QTOWF |
| 2015-08-31 | 07:17 | 109 | 2 | SLED041 | 41 | 69 41.66 N | 166 5.47 W | SLED | QTOWF |
| 2015-08-31 | 07:17 | 109 | 2 | SLED041 | 41 | 69 41.66 N | 166 5.47 W | CAT | CAT |
| 2015-08-31 | 07:17 | 109 | 2 | SLED041 | 41 | 69 41.66 N | 166 5.47 W | TAPS-6 | TAPS6 |
| 2015-08-31 | 08:55 | 110 | 1 | CTD115 | 38 | 69 34.94 N | 165 44.23 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-31 | 09:16 | 110 | 2 | SLED042 | 37 | 69 35.07 N | 165 44.39 W | SLED | QTOWF |

**Cruise Summary For FOCI Cruise 1RB15 (RB1505) Page 12**

**Date** **Time** **Alt.** **Depth**

**(GMT)** **(GMT)** **Station** **Haul** **Station** **(m)** **Latitude** **Longitude** **Gear** **Samples Collected**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2015-08-31 | 09:16 | 110 | 2 | SLED042 | 37 | 69 35.07 N | 165 44.39 W | SLED | QTOWF, AMGEN |
| 2015-08-31 | 09:16 | 110 | 2 | SLED042 | 37 | 69 35.07 N | 165 44.39 W | LG-CB | QTOWF |
| 2015-08-31 | 09:16 | 110 | 2 | SLED042 | 37 | 69 35.07 N | 165 44.39 W | CAT | CAT |
| 2015-08-31 | 09:16 | 110 | 2 | SLED042 | 37 | 69 35.07 N | 165 44.39 W | TAPS-6 | TAPS6 |
| 2015-08-31 | 10:54 | 111 | 1 | CTD116 | 33 | 69 29.86 N | 165 22.16 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-31 | 11:10 | 111 | 2 | SLED043 | 33 | 69 29.74 N | 165 22.04 W | CAT | CAT |
| 2015-08-31 | 11:10 | 111 | 2 | SLED043 | 33 | 69 29.74 N | 165 22.04 W | LG-CB | QTOWF |
| 2015-08-31 | 11:10 | 111 | 2 | SLED043 | 33 | 69 29.74 N | 165 22.04 W | SLED | QTOWF, AMGEN |
| 2015-08-31 | 11:10 | 111 | 2 | SLED043 | 33 | 69 29.74 N | 165 22.04 W | SLED | QTOWF, AMGEN |
| 2015-08-31 | 11:10 | 111 | 2 | SLED043 | 33 | 69 29.74 N | 165 22.04 W | TAPS-6 | TAPS6 |
| 2015-08-31 | 12:29 | 112 | 1 | CTD117 | 31 | 69 24.51 N | 165 0.44 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-08-31 | 12:47 | 112 | 2 | SLED044 | 30 | 69 24.38 N | 165 0.23 W | SLED | QTOWF, AMGEN |
| 2015-08-31 | 12:47 | 112 | 2 | SLED044 | 30 | 69 24.38 N | 165 0.23 W | SLED | QTOWF |
| 2015-08-31 | 12:47 | 112 | 2 | SLED044 | 30 | 69 24.38 N | 165 0.23 W | LG-CB | QTOWF |
| 2015-08-31 | 12:47 | 112 | 2 | SLED044 | 30 | 69 24.38 N | 165 0.23 W | CAT | CAT |
| 2015-08-31 | 12:47 | 112 | 2 | SLED044 | 30 | 69 24.38 N | 165 0.23 W | TAPS-6 | TAPS6 |
| 2015-08-31 | 14:06 | 113 | 1 | CTD118 | 24 | 69 18.27 N | 164 36.85 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-31 | 14:24 | 113 | 2 | SLED045 | 24 | 69 18.16 N | 164 36.54 W | LG-CB | QTOWF |
| 2015-08-31 | 14:24 | 113 | 2 | SLED045 | 24 | 69 18.16 N | 164 36.54 W | CAT | CAT |
| 2015-08-31 | 14:24 | 113 | 2 | SLED045 | 24 | 69 18.16 N | 164 36.54 W | SLED | QTOWF |
| 2015-08-31 | 14:24 | 113 | 2 | SLED045 | 24 | 69 18.16 N | 164 36.54 W | SLED | QTOWF, AMGEN |
| 2015-08-31 | 14:24 | 113 | 2 | SLED045 | 24 | 69 18.16 N | 164 36.54 W | TAPS-6 | TAPS6 |
| 2015-08-31 | 22:18 | 114 | 1 | CTD119 | 34 | 68 18.48 N | 166 55.69 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-08-31 | 23:18 | 115 | 1 | CTD120 | 45 | 68 14.6 N | 167 6.99 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |

**Cruise Summary For FOCI Cruise 1RB15 (RB1505) Page 13**

**Date** **Time** **Alt.** **Depth**

**(GMT)** **(GMT)** **Station** **Haul** **Station** **(m)** **Latitude** **Longitude** **Gear** **Samples Collected**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2015-09-01 | 00:16 | 116 | 1 | CTD121 | 47 | 68 11.64 N | 167 18.21 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-09-01 | 01:19 | 117 | 1 | CTD122 | 49 | 68 7.67 N | 167 30.7 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-09-01 | 02:54 | 118 | 1 | CTD123 | 56 | 68 0.78 N | 167 51.71 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-09-01 | 04:28 | 119 | 1 | CTD124 | 58 | 67 54.05 N | 168 13.83 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-09-01 | 06:05 | 120 | 1 | CTD125 | 50 | 67 47.17 N | 168 35.4 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-09-01 | 07:40 | 121 | 1 | CTD126 | 50 | 67 41.68 N | 168 54.99 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR |
| 2015-09-01 | 19:14 | 122 | 1 | CTD127 | 49 | 65 40.1 N | 168 19.98 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-09-02 | 19:38 | 122 | 2 | SLED046 | 50 | 65 40.05 N | 168 19.52 W | SLED | DISCARD |
| 2015-09-02 | 19:38 | 122 | 2 | SLED046 | 50 | 65 40.05 N | 168 19.52 W | CAT | CAT |
| 2015-09-02 | 19:38 | 122 | 2 | SLED046 | 50 | 65 40.05 N | 168 19.52 W | SLED | DISCARD |
| 2015-09-02 | 19:38 | 122 | 2 | SLED046 | 50 | 65 40.05 N | 168 19.52 W | LG-CB | DISCARD |
| 2015-09-02 | 19:38 | 122 | 2 | SLED046 | 50 | 65 40.05 N | 168 19.52 W | TAPS-6 | TAPS6 |
| 2015-09-01 | 21:24 | 123 | 1 | CTD128 | 26 | 65 40.07 N | 168 10.74 W | CTDB | PAR, CTD, CHLOR, NUT, OXYGEN, FLUOR, SAL |
| 2015-09-01 | 21:49 | 123 | 2 | SLED047 | 35 | 65 40.14 N | 168 11.19 W | SLED | QTOWF |
| 2015-09-01 | 21:49 | 123 | 2 | SLED047 | 35 | 65 40.14 N | 168 11.19 W | LG-CB | QTOWF |
| 2015-09-01 | 21:49 | 123 | 2 | SLED047 | 35 | 65 40.14 N | 168 11.19 W | CAT | CAT |
| 2015-09-01 | 21:49 | 123 | 2 | SLED047 | 35 | 65 40.14 N | 168 11.19 W | SLED | QTOWF |
| 2015-09-01 | 21:49 | 123 | 2 | SLED047 | 35 | 65 40.14 N | 168 11.19 W | TAPS-6 | TAPS6 |
| 2015-09-04 | 05:59 | 124 |  | Argo Float | 2200 | 54 52.24 N | 168 23.49 W | ARGO | ARGO Float |
| 2015-09-01 | 06:09 | 125 |  | SLED047 | 2200 | 54 52.87 N | 168 23.45 W | ARGO | ARGO Float |