# CRUISE REPORT

***R/V Aranda***

Cruise 07/2022

COMBINE 3 leg

*8.8.2022 – 19.8.2022*

*This report is based on preliminary data and is subject to changes.*

**Objectives of the cruise**

The objectives of the cruise were:

1) The objectives of the cruise were:
a. to monitor water hydrography and chemistry

b. to conduct chlorophyll *a*, phyto- and zooplankton sampling and sampling of oil in surface water and phytotoxins

c. to take benthic animal samples and sediment cores to monitor status of the sea bed in the Gulf of Finland

d. to take extra WP-2 hauls for genetic studies of the Mysids visibility and

e. to carry out maintenance of wave buoys of FMI in the Northern Baltic Proper and in the Bothnian Sea

2) Measured parameters were water temperature, salinity, conductivity, oxygen, $H_2S$, pH silicate and nutrients (ammonium, nitrite – nitrate, nitrite, phosphate, total nitrogen and total phosphorus).
Chlorophyl α samples were filtered on board to be analyzed later in laboratory.

Table 1. The scientific crew

| Name | On board | Organization |
|---|---|---|
| **Pekka Kotilainen** | **8.-16.8.2022** | **SYKE** |
| **Ilkka Lastumäki** | **8.-19.8.2022** | **SYKE** |
| **Pia Varmanen** | **8.-19.8.2022** | **SYKE** |
| **Elisa Lindgren** | **8.-19.8.2022** | **IL** |
| **Antti Räike** | **8.-19.8.2022** | **SYKE** |
| **Tanja Kinnunen** | **8.-19.8.2022** | **SYKE** |
| **Mira Granlund** | **8.-19.8.2022** | **SYKE** |
| **Olga Kovru** | **8.-19.8.2022** | **SYKE** |
| **Sirpa Lehtinen** | **8.-19.8.2022** | **SYKE** |
| **Heidi Hällfors** | **8.-16.8.2022** | **SYKE** |
| **Annaliina Skyttä** | **8.-19.8.2022** | **SYKE** |
| **Sami Rantapusa** | **8.-19.8.2022** | **IL** |
| **Maiju Lehtiniemi** | **16.-19.8.2022** | **SYKE** |
| **Okko Outinen** | **16.-19.8.2022** | **SYKE** |
| **Anne-Mari Luhtanen** | **16.-19.8.2022** | **SYKE** |

## Cruise Route

### The 1st leg

#### Gulf of Finland

The 1st leg of the R/V Aranda's summer cruise COMBINE 3 started from her home port, Helsinki, Tammasaari on the 8th of August 2022 at 09.00 hrs.
The first station of the cruise was 39A, where at the FINAS evaluation of the conducted sampling, analysis and data handling were conducted. Simultaneously with FINAS work safety and work ergonomics at sea were evaluated.

#### Northern Baltic Proper

The group of evaluators was dropped at Hernesaari, Helsinki. In the afternoon and R/V Aranda to bunker and finally headed to the west to LL transect LL12, LL15, LL17 and LL19.
Between the LL15 and Ll17 the wave buoy of FMI was replaced at AALTOPI and the last station in the region was F69.

#### The Bay of Bothnia

The cruise headed to the Bothnian Sea, F64 and further to F33. The station SR5 in the southern part of the Bothnian Sea was sampled and then followed the stations SR3, MS6 and MS3. Stations F18 and F13 were sampled at Kvarken. The cruise continued to RR3 and to station F2. After F2 Aranda headed towards the south and the stations CVI, CV, RR6 and RR7. The southernmost station in the Bothnian Bay, BO3, was sampled in the evening on Saturday, the 13th of August. At Kvarken the stations F15 and F16 were sampled and then in the Northern part of the Bothnian Sea followed US7, US6b and US5b. Further in the south F26 was sampled before the maintenance of the wave buoy at AALTO_SM. After the maintenance the cruise headed to MS9 and SR8 and SR7 stations.

#### Archipelago Sea

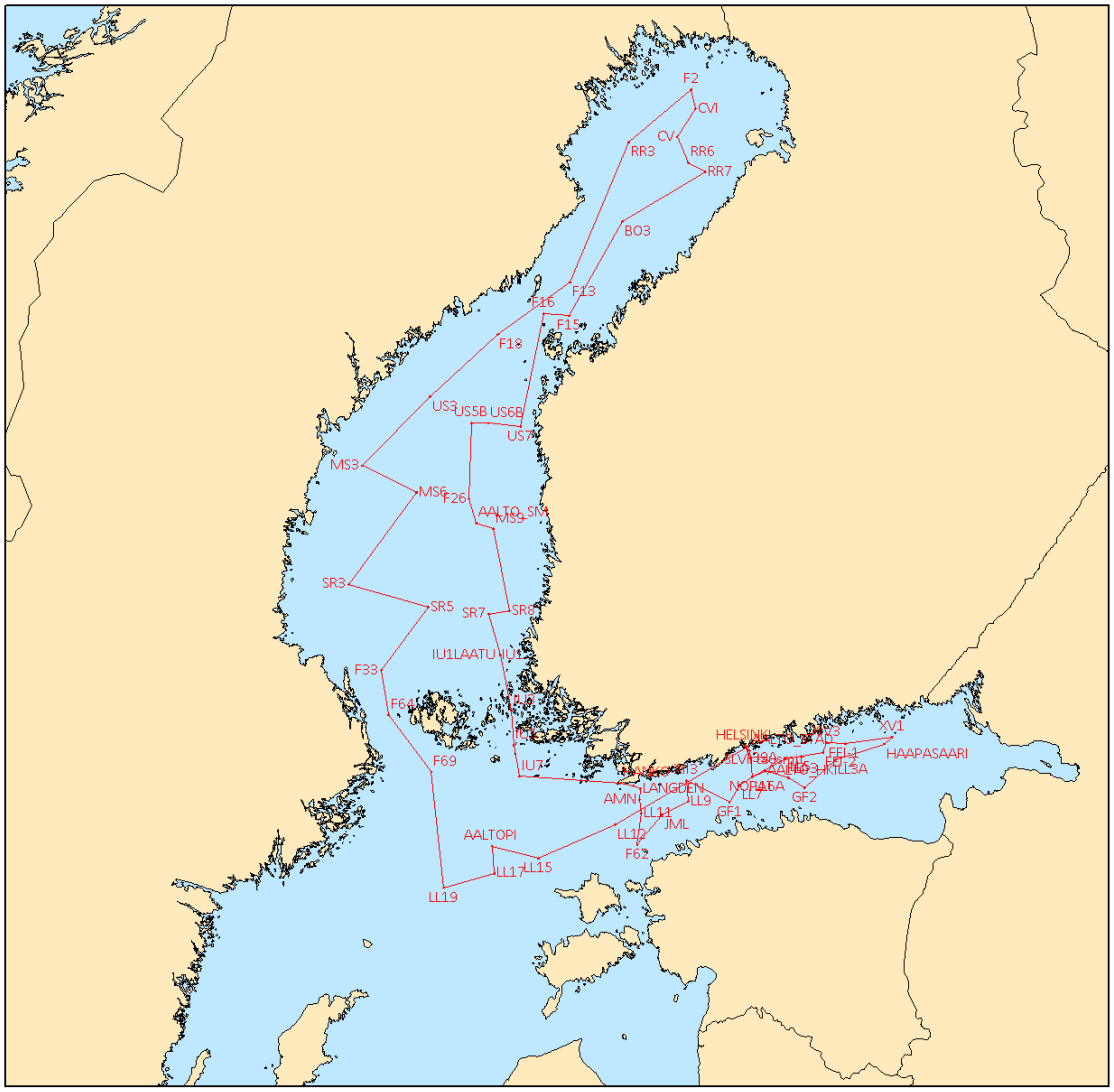
The last part of the 1st leg was the transect in the Archipelago, namely the stations IU1, IU3, ÌU5 and IU7. The first leg ended up outside Hanko on the 16th of August 2022 at 14.00.
Partial exchange of the scientific crew wase carried out by using the MOB boat, in order to avoid mooring time and the port cost.

### The 2nd leg

#### Gulf of Finland

The 2nd leg of the R/V Aranda's summer cruise COMBINE 3 started from Hanko the 16th of August 2022 at 15.00 hrs after the partial crew change with the MOB boat was finalized.

The second leg sampled stations in the Gulf of Finland only. UUS-23
The first station sampled was AMN, then LL11, F62, JML and LL9 in the western part. The cruise continued to XII3, GF1, LL7, LL6A in the middle of the Gulf. After those wave buoy was taken up and its maintenance work was conducted. The cruise continued towards eastern Gulf of Finland with samplings at stations LL5, GF2, LL3A, HAAPASAARI, XV1, FEI-1, XIV3, FEI-2 and FEI-3. After sampling at those routine monitoring stations were completed we pumped 6 cubic meters of sea water to plastic containers to be taken to Marine Research Laboratory in Viikki, Helsinki. The last stop was at the Suomenlinna wave buoy which was taken up, cleaned and deployed again. The cruise ends in Helsinki on 19 August at 11 hrs.




Cruise route

Finnish Environment Institute
Agnes Sjöbergin katu 2
FI-00790 Helsinki
Finland
http://www.syke.fi/en

Finnish Meteorological Institute
Erik Palménin aukio 1
P.O. Box 503
FI-00101 Helsinki
Finland
http://en.ilmatieteenlaitos.fi/

**Conclusions**

## Northern Baltic Proper

Hydrography

Water column was anoxic below 70m depth and measured $H_2S$ concentrations were higher than the long-term (in August 2000-2021) averages.

Nutrients

Observed dissolved nutrient concentrations were above the summer average (2000-2020), especially in the deep layers, but the total nutrient concentrations at the level, which is typical for the season (August).

## Bothnian Sea

Hydrography

Salinity values were at the average level (2000-2020). Low oxygen concentrations were observed, especially in deep waters. Oxygen demand has increased in deep waters, probably due to extensive algal blooms in 2020. Still, observed oxygen saturation was over 50%.

Nutrients

High nutrient concentrations were observed especially in deep layers and even silicate concentrations were at some stations well above the average (2000-2020).

## Kvarken

Hydrography

Some upwelling had probably taken place recently in the area, as observed temperatures were lower than in average, especially below the productive layer. Observed salinity was slightly higher than in average, too.

Nutrients

In general, low nutrient concentrations were observed in the productive layer, but they were higher than in average of the region.

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**Bothnian Bay**

Hydrography

Observed temperature, salinity and oxygen levels were typical for the region and season.

Nutrients

Observed dissolved nutrient concentrations were at many stations higher than the long-term average concentrations, but still at low level and very close to the limit of quantification. Development of nutrient concentrations in the region should be followed up.

## Archipelago Sea

Hydrography

A slight increase in salinity and oxygen was observed.

Nutrients

Somewhat higher concentrations of dissolved nutrients were observed in the northern part of the Archipelago, but no remarkable changes were detected.

## Gulf of Finland

Hydrography

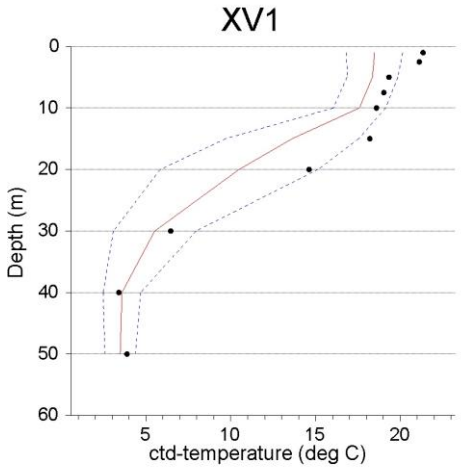
Oxygen was depleted in major parts of the Gulf of Finland.

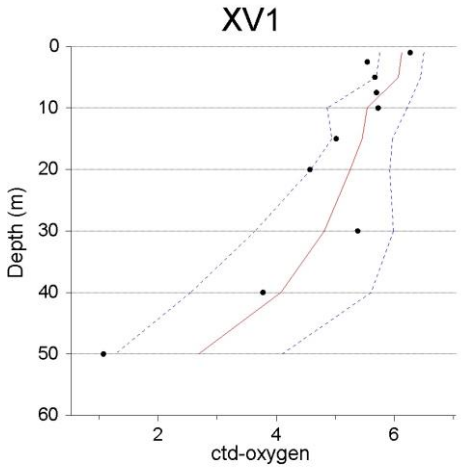
Nutrients

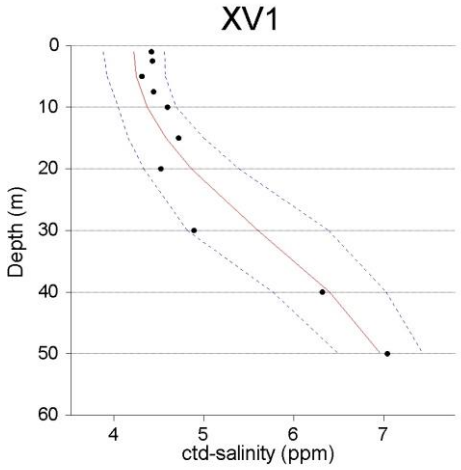
Phosphate concentrations were higher than the long-term average concentrations. In the eastern Gulf of Finland phosphate concentration close to the bottom were higher than ever before (measurements done over 60 years).

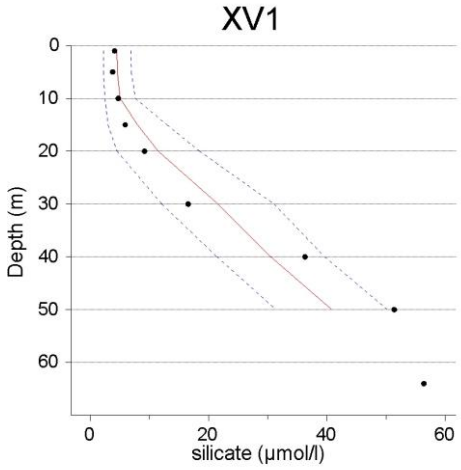
**Observations**

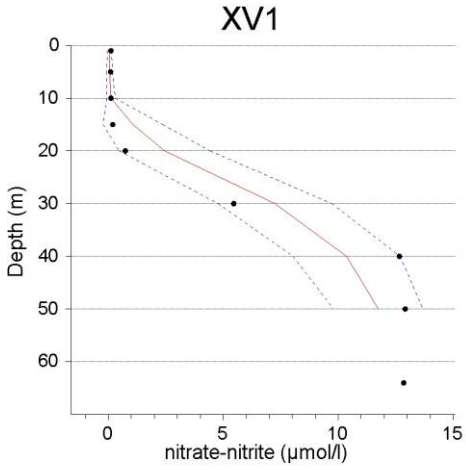
Annex 1. Selected variables at the stations XV1, LL7, LL12, LL17, F64, SR5, US5B, BO3 and F2. Mean (red solid line) and standard deviation (blue dotted lines) represent the data collected at the same time of season since the year 2000.

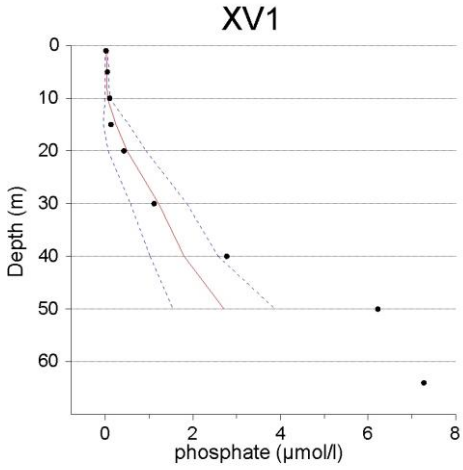


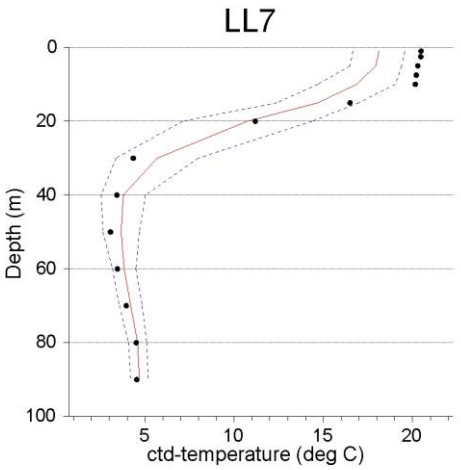



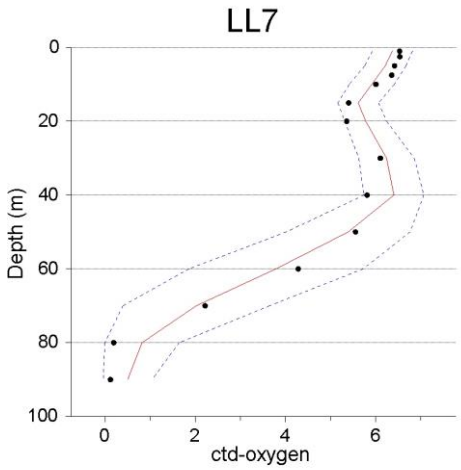



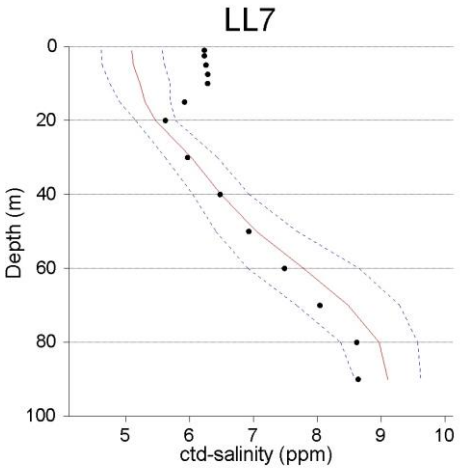



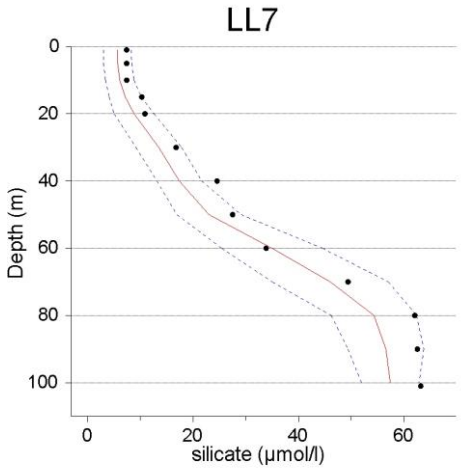



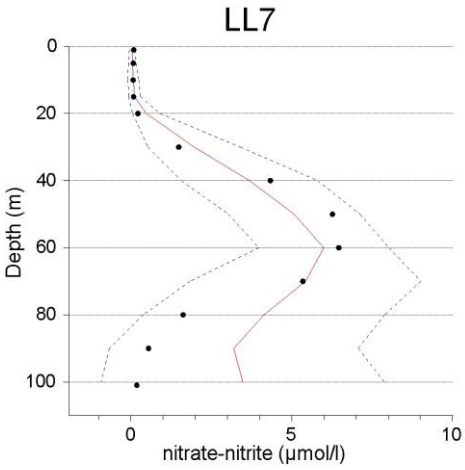



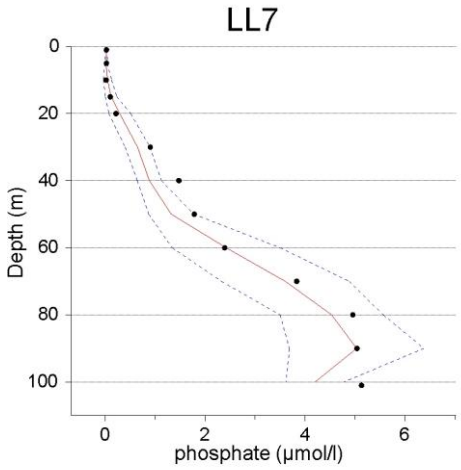

LL7
Depth (m)
0
20
40
60
80
100
5
10
15
20
ctd-temperature (deg C)

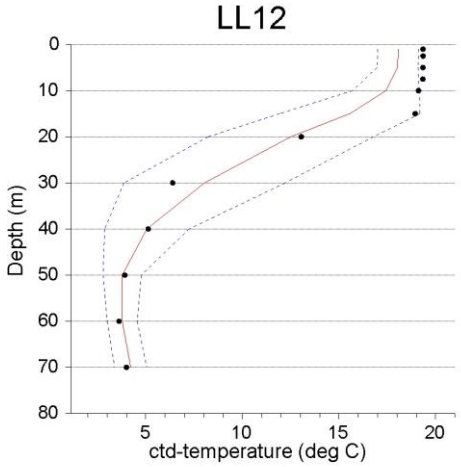

LL7
Depth (m)
0
20
40
60
80
100
0
2
4
6
ctd-oxygen

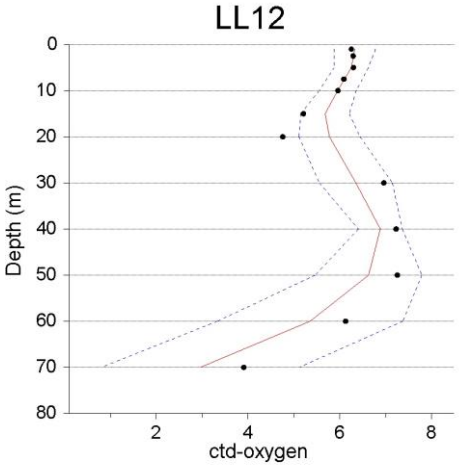

LL7
Depth (m)
0
20
40
60
80
100
5
6
7
8
9
10
ctd-salinity (ppm)

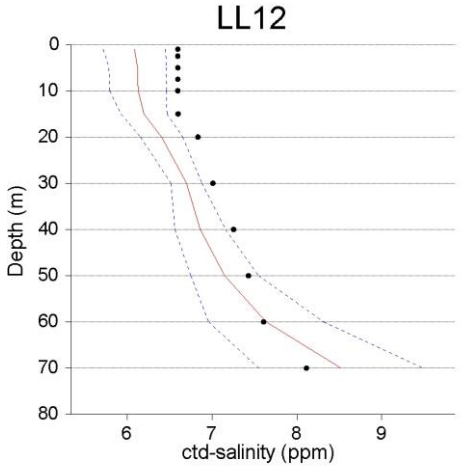

LL7
Depth (m)
0
20
40
60
80
100
0
20
40
60
silicate (µmol/l)

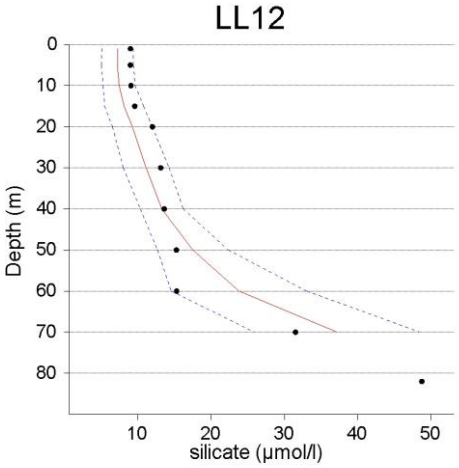

LL7
Depth (m)
0
20
40
60
80
100
0
5
10
nitrate-nitrite (µmol/l)

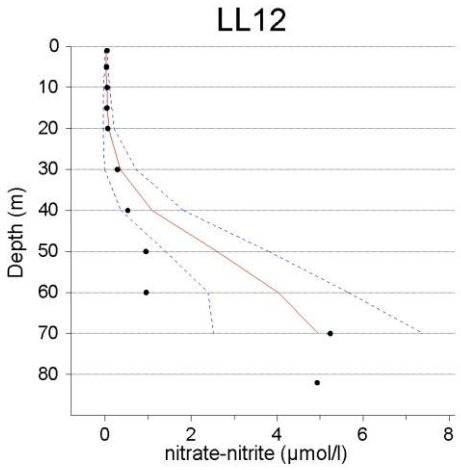

LL7
Depth (m)
0
20
40
60
80
100
0
2
4
6
phosphate (µmol/l)

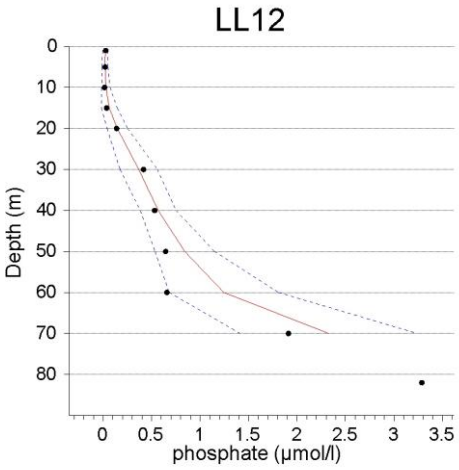

LL12
Depth (m)
0
10
20
30
40
50
60
70
80
5
10
15
20
ctd-temperature (deg C)

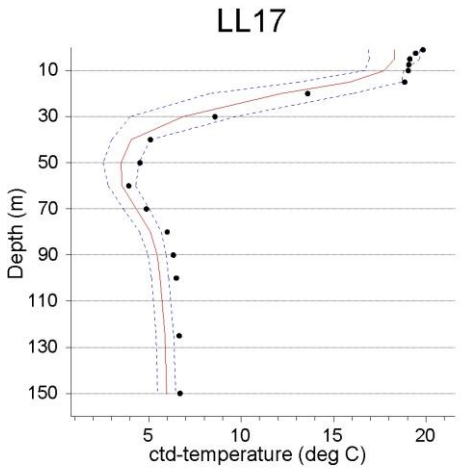

LL12
Depth (m)
0
10
20
30
40
50
60
70
80
2
4
6
8
ctd-oxygen

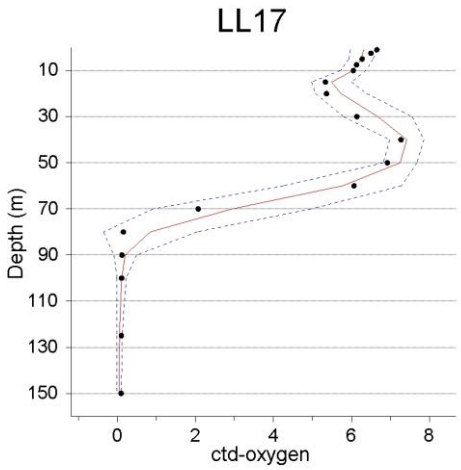

LL12
Depth (m)
0
10
20
30
40
50
60
70
80
6
7
8
9
ctd-salinity (ppm)

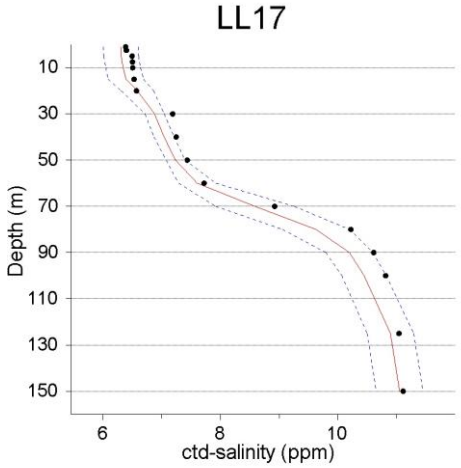

LL12
Depth (m)
0
10
20
30
40
50
60
70
80
10
20
30
40
50
silicate (µmol/l)

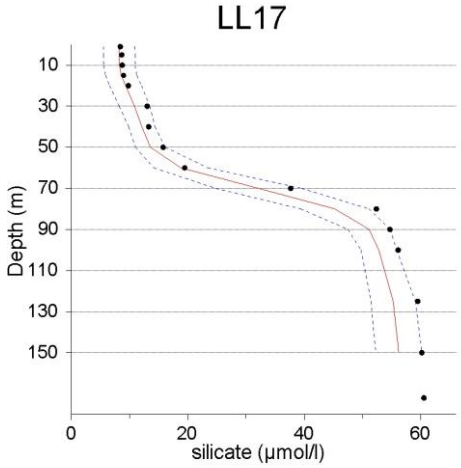

LL12
Depth (m)
0
10
20
30
40
50
60
70
80
0
2
4
6
8
nitrate-nitrite (µmol/l)

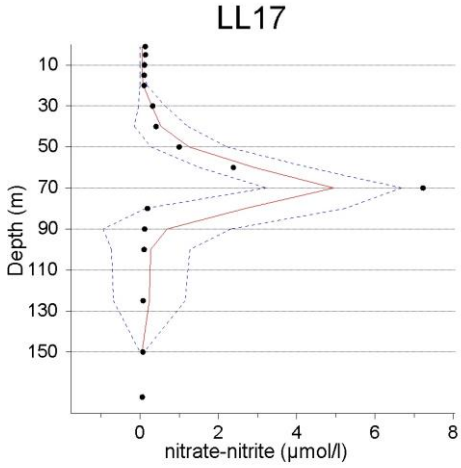

LL12
Depth (m)
0
10
20
30
40
50
60
70
80
0
0.5
1
1.5
2
2.5
3
3.5
phosphate (µmol/l)

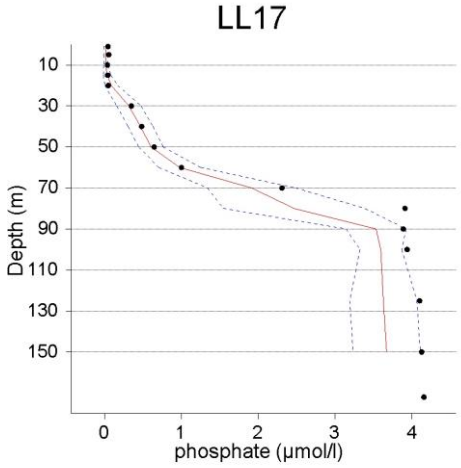

LL17
Depth (m)
10
30
50
70
90
110
130
150
5
10
15
20
ctd-temperature (deg C)

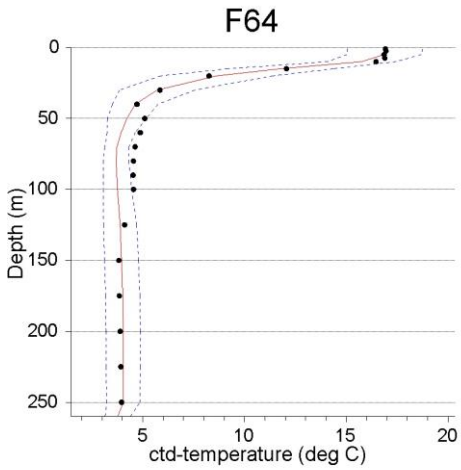

LL17
Depth (m)
10
30
50
70
90
110
130
150
0
2
4
6
8
ctd-oxygen

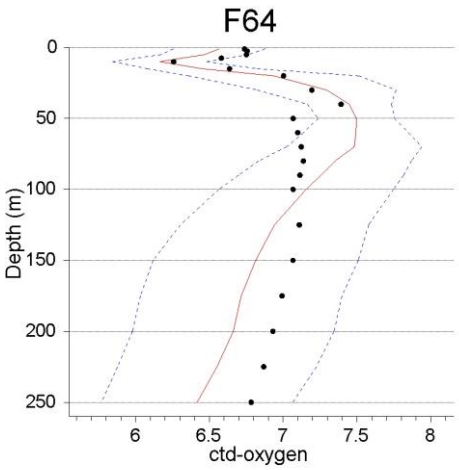

LL17
Depth (m)
10
30
50
70
90
110
130
150
6
8
10
ctd-salinity (ppm)

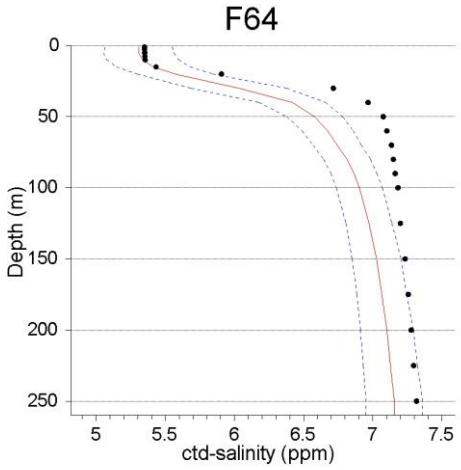

LL17
Depth (m)
10
30
50
70
90
110
130
150
0
20
40
60
silicate (µmol/l)

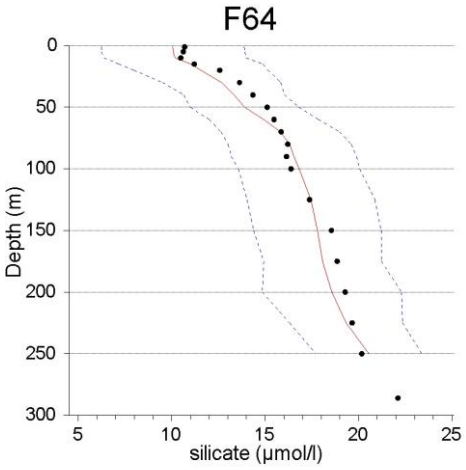

LL17
Depth (m)
10
30
50
70
90
110
130
150
0
2
4
6
8
nitrate-nitrite (µmol/l)

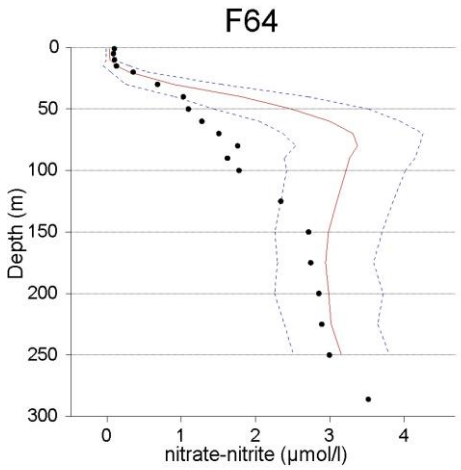

LL17
Depth (m)
10
30
50
70
90
110
130
150
0
1
2
3
4
phosphate (µmol/l)

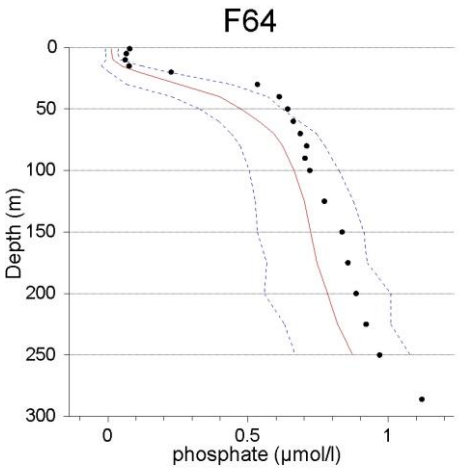

F64
Depth (m)
0
50
100
150
200
250
5
10
15
20
ctd-temperature (deg C)

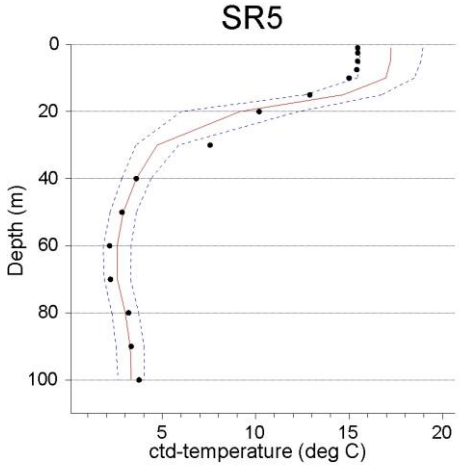

F64
Depth (m)
0
50
100
150
200
250
6
6.5
7
7.5
8
ctd-oxygen

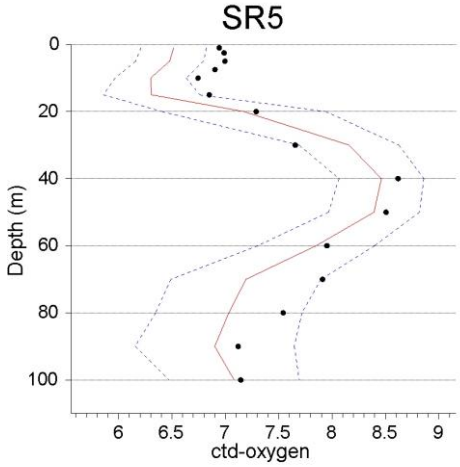

F64
Depth (m)
0
50
100
150
200
250
5
5.5
6
6.5
7
7.5
ctd-salinity (ppm)

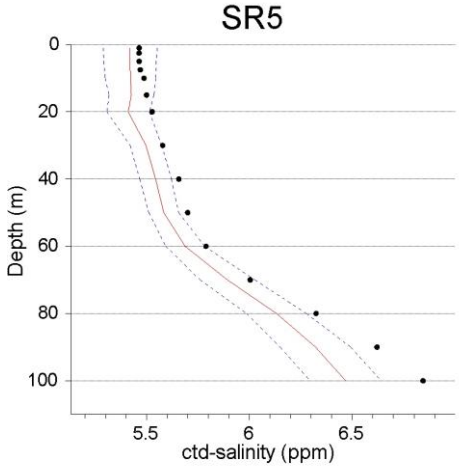

F64
Depth (m)
0
50
100
150
200
250
300
5
10
15
20
25
silicate (µmol/l)

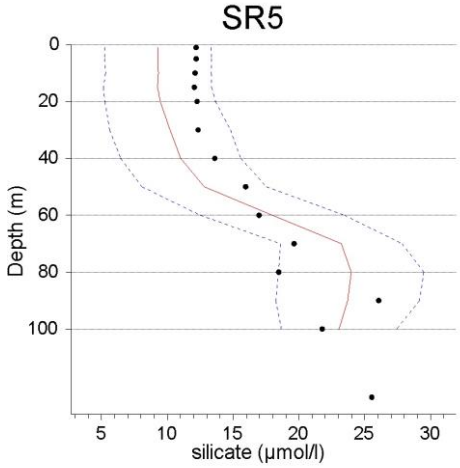

F64
Depth (m)
0
50
100
150
200
250
300
0
1
2
3
4
nitrate-nitrite (µmol/l)

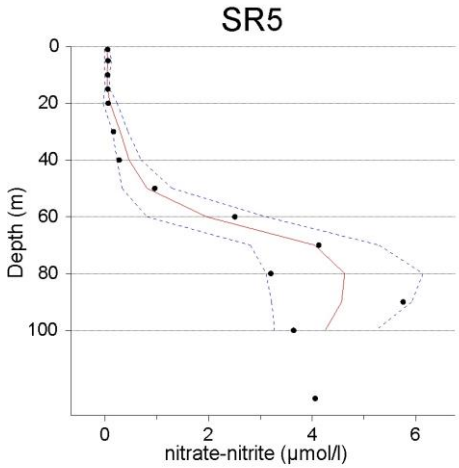

F64
Depth (m)
0
50
100
150
200
250
300
0
0.5
1
phosphate (µmol/l)

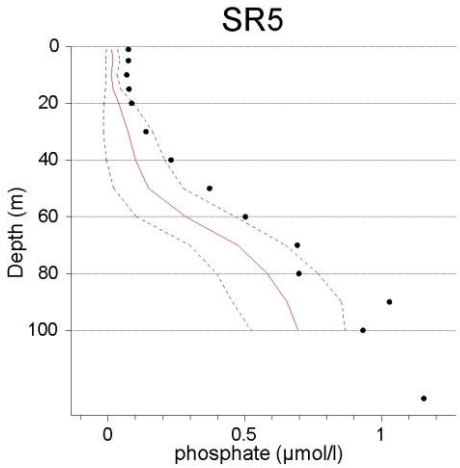

SR5
Depth (m)
0
20
40
60
80
100
5
10
15
20
ctd-temperature (deg C)

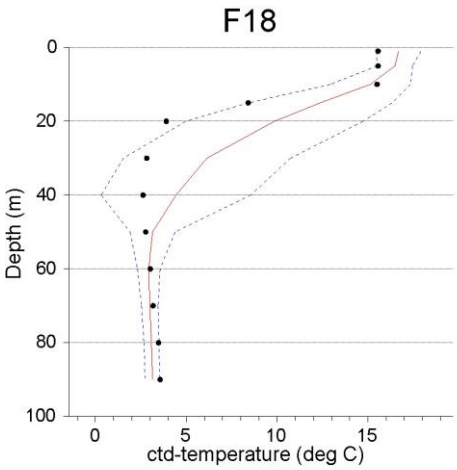

SR5
Depth (m)
0
20
40
60
80
100
6
6.5
7
7.5
8
8.5
9
ctd-oxygen

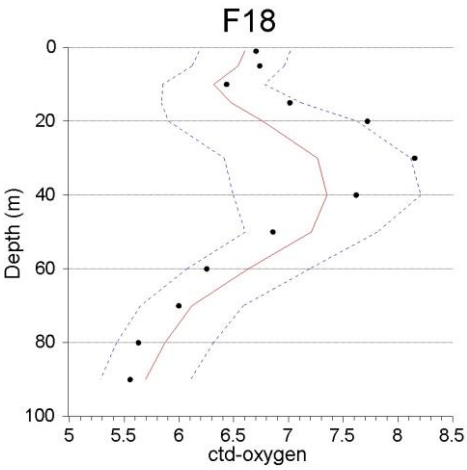

SR5
Depth (m)
0
20
40
60
80
100
5.5
6
6.5
ctd-salinity (ppm)

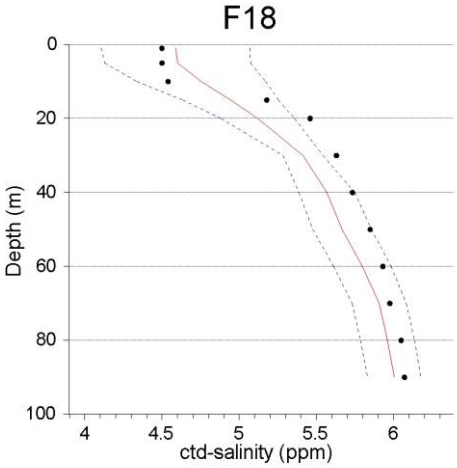

SR5
Depth (m)
0
20
40
60
80
100
5
10
15
20
25
30
silicate (µmol/l)

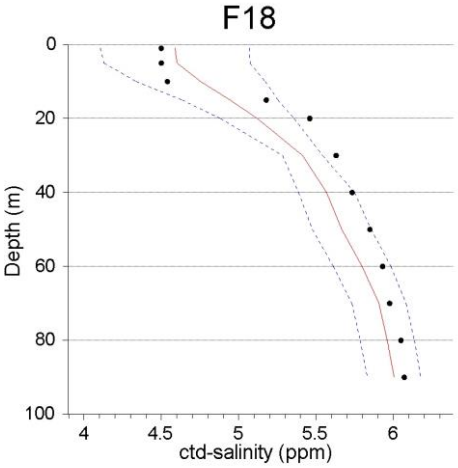

SR5
Depth (m)
0
20
40
60
80
100
0
2
4
6
nitrate-nitrite (µmol/l)

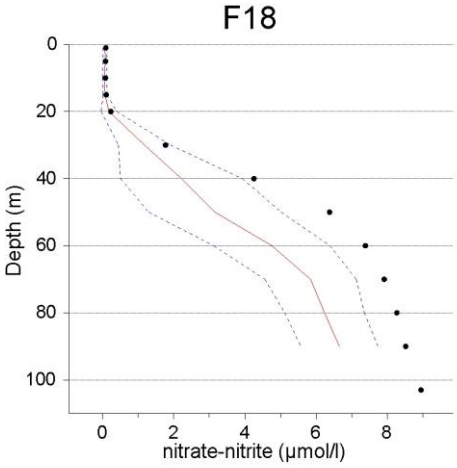

SR5
Depth (m)
0
20
40
60
80
100
0
0.5
1
phosphate (µmol/l)

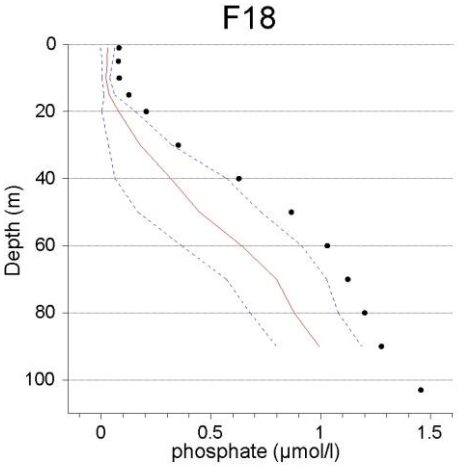

F18
Depth (m)
0
20
40
60
80
100
0
5
10
15
ctd-temperature (deg C)

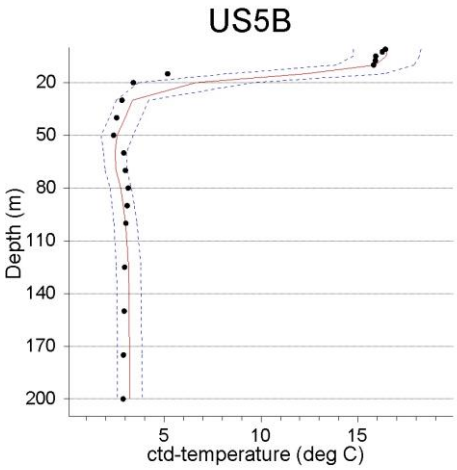

F18
Depth (m)
0
20
40
60
80
100
5
5.5
6
6.5
7
7.5
8
8.5
ctd-oxygen

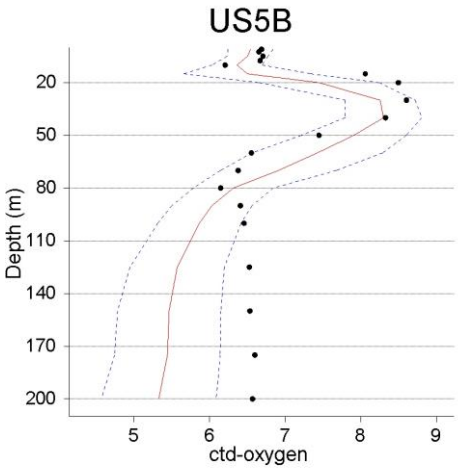

F18
Depth (m)
0
20
40
60
80
100
4
4.5
5
5.5
6
ctd-salinity (ppm)

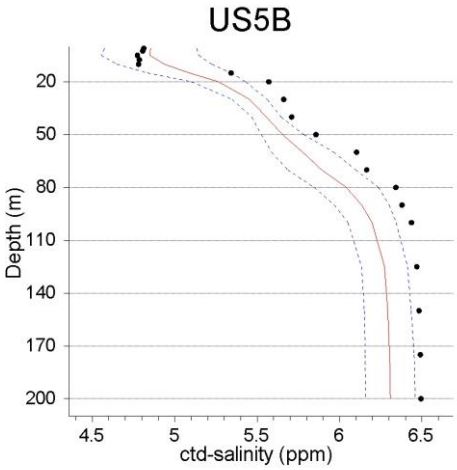

F18
Depth (m)
0
20
40
60
80
100
4
4.5
5
5.5
6
ctd-salinity (ppm)

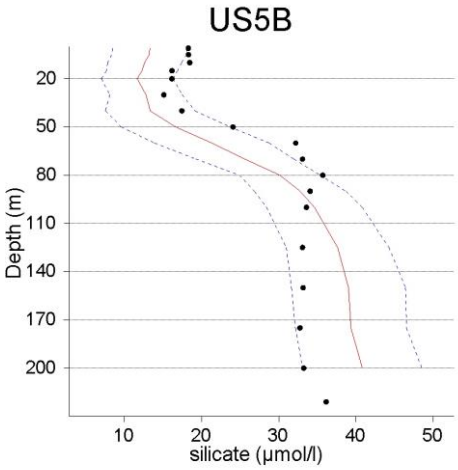

F18
Depth (m)
0
20
40
60
80
100
0
2
4
6
8
nitrate-nitrite (µmol/l)

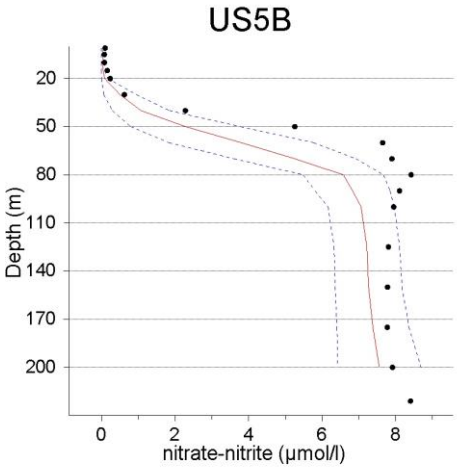

F18
Depth (m)
0
20
40
60
80
100
0
0.5
1
1.5
phosphate (µmol/l)

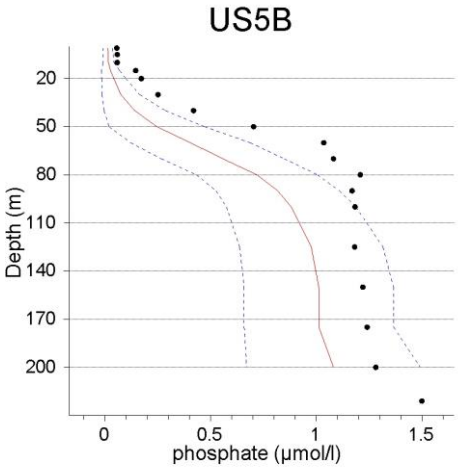

US5B
Depth (m)
20
50
80
110
140
170
200
5
10
15
ctd-temperature (deg C)

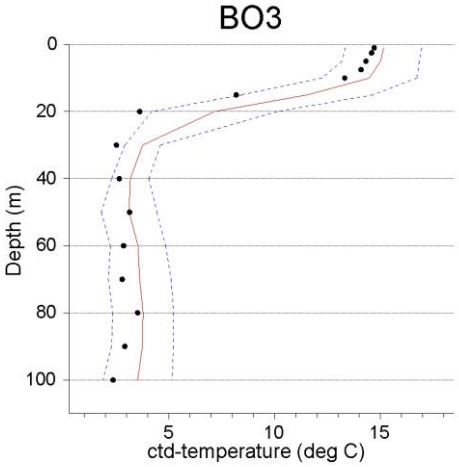

US5B
Depth (m)
20
50
80
110
140
170
200
5
6
7
8
9
ctd-oxygen

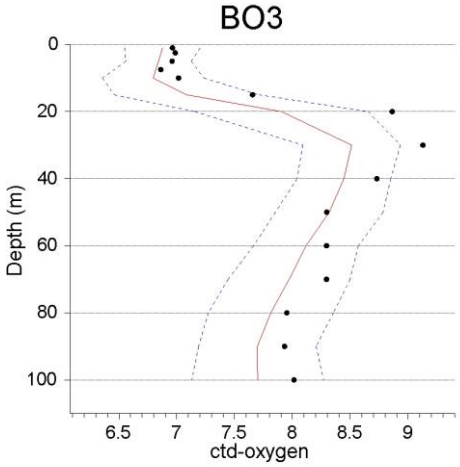

US5B
Depth (m)
20
50
80
110
140
170
200
4.5
5
5.5
6
6.5
ctd-salinity (ppm)

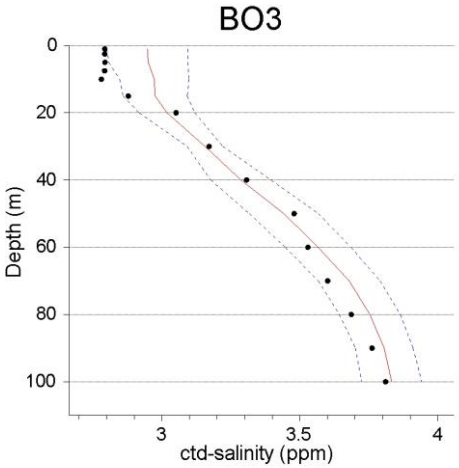

US5B
Depth (m)
20
50
80
110
140
170
200
10
20
30
40
50
silicate (µmol/l)

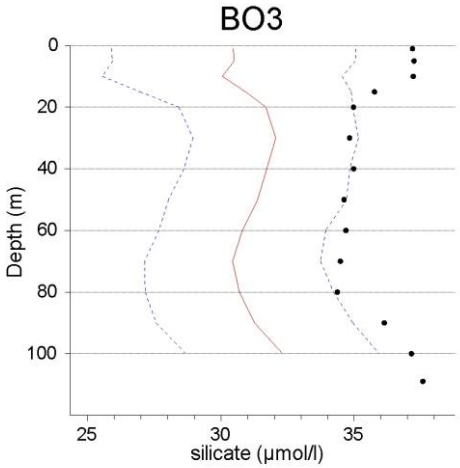

US5B
Depth (m)
20
50
80
110
140
170
200
0
2
4
6
8
nitrate-nitrite (µmol/l)

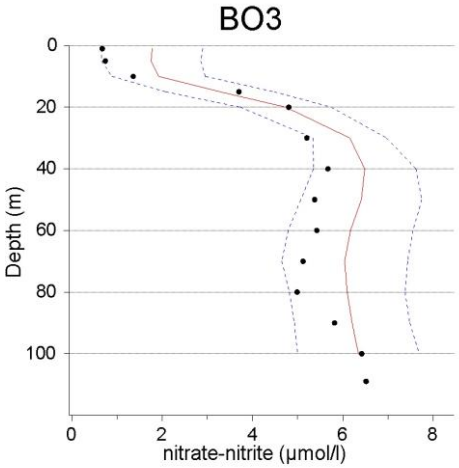

US5B
Depth (m)
20
50
80
110
140
170
200
0
0.5
1
1.5
phosphate (µmol/l)

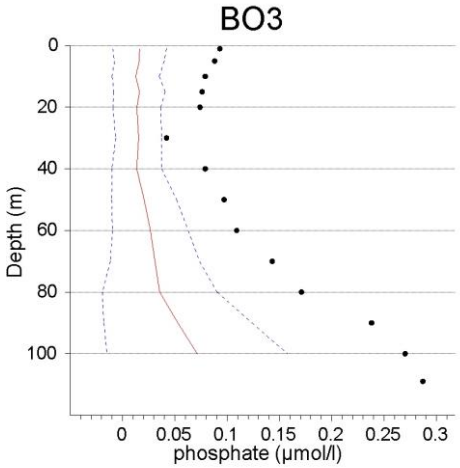

BO3
Depth (m)
0
20
40
60
80
100
5
10
15
ctd-temperature (deg C)

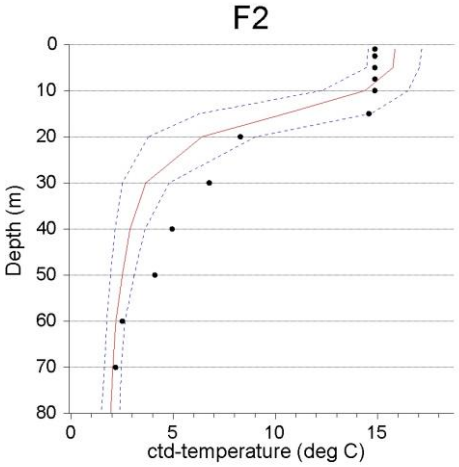

BO3
Depth (m)
0
20
40
60
80
100
6.5
7
7.5
8
8.5
9
ctd-oxygen

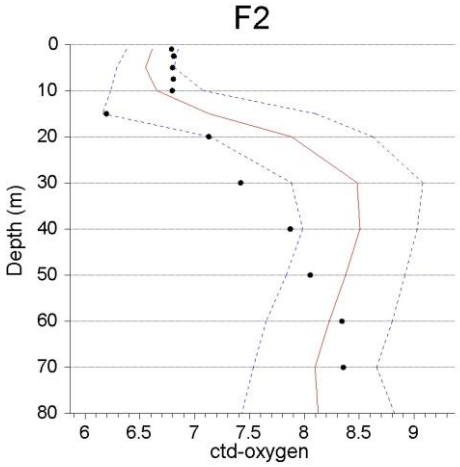

BO3
Depth (m)
0
20
40
60
80
100
3
3.5
4
ctd-salinity (ppm)

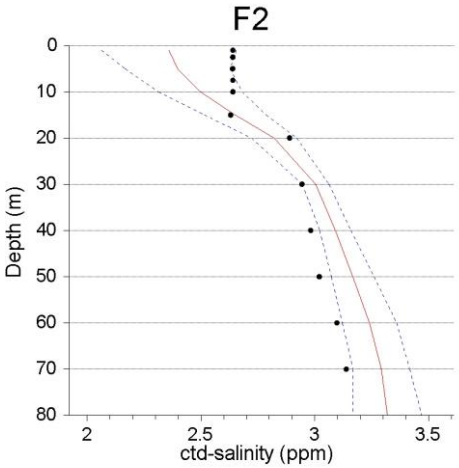

BO3
Depth (m)
0
20
40
60
80
100
25
30
35
silicate (µmol/l)

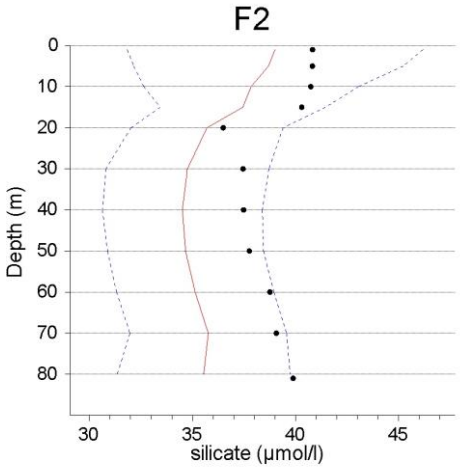

BO3
Depth (m)
0
20
40
60
80
100
0
2
4
6
8
nitrate-nitrite (µmol/l)

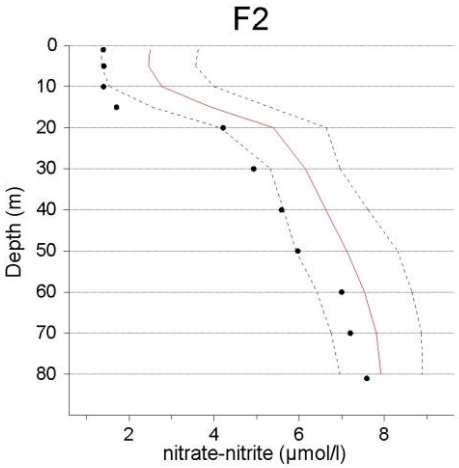

BO3
Depth (m)
0
20
40
60
80
100
0
0.05
0.1
0.15
0.2
0.25
0.3
phosphate (µmol/l)

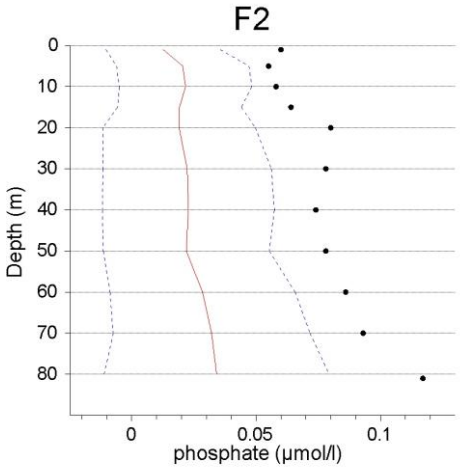

F2
Depth (m)
0
10
20
30
40
50
60
70
80
0
5
10
15
ctd-temperature (deg C)


F2
Depth (m)
0
10
20
30
40
50
60
70
80
6
6.5
7
7.5
8
8.5
9
ctd-oxygen


F2
Depth (m)
0
10
20
30
40
50
60
70
80
2
2.5
3
3.5
ctd-salinity (ppm)


F2
Depth (m)
0
10
20
30
40
50
60
70
80
30
35
40
45
silicate (µmol/l)


F2
Depth (m)
0
10
20
30
40
50
60
70
80
2
4
6
8
nitrate-nitrite (µmol/l)


F2
Depth (m)
0
10
20
30
40
50
60
70
80
0
0.05
0.1
phosphate (µmol/l)

## Annex 2. List of sampled stations of the cruise

| INDEX | STATION | latitude | longitude | depth | DATE | time | ctd | pH | ox | nu | ph | zo | be | chl | oil | tox | secchi |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HELSINKI | HELSINKI | 60.16182 | 24.90157 | | 2022-08-08 | 06:01 | | | | | | | | | | | |
| 2022010222 | 39A | 60.06685 | 24.98017 | 42 | 2022-08-08 | 07:55 | x | x | x | x | x | x | x | x | x | | x |
| HELSINKI | HELSINKI | 60.15200 | 24.92337 | | 2022-08-08 | 11:53 | | | | | | | | | | | |
| 2022010223 | LL12 | 59.48347 | 22.89675 | 83 | 2022-08-09 | 00:53 | x | x | x | x | x | x | | x | x | | |
| 2022010224 | LL15 | 59.18337 | 21.74685 | 132 | 2022-08-09 | 07:39 | x | x | x | x | | | | x | | | x |
| 2022010225 | AALTOPI | 59.24732 | 21.00128 | 102 | 2022-08-09 | 13:26 | | | | | | | | | | | |
| 2022010226 | LL17 | 59.03327 | 21.07930 | 173 | 2022-08-09 | 16:01 | x | x | x | x | x | x | | x | x | | x |
| 2022010227 | LL19 | 58.88068 | 20.31080 | 168 | 2022-08-09 | 21:33 | x | x | x | x | | | | x | | | |
| 2022010228 | F69 | 59.78332 | 19.93005 | 193 | 2022-08-10 | 05:26 | x | x | x | x | | | | x | | | x |
| 2022010229 | F64 | 60.18895 | 19.14248 | 287 | 2022-08-10 | 11:05 | x | x | x | x | x | x | | x | x | | |
| 2022010230 | F33 | 60.53315 | 18.93765 | 136 | 2022-08-10 | 18:01 | x | x | x | x | | | | x | | | x |
| 2022010231 | SR5 | 61.08338 | 19.57965 | 125 | 2022-08-10 | 23:43 | x | x | x | x | x | x | | x | x | | |
| 2022010232 | SR3 | 61.18337 | 18.23003 | 73 | 2022-08-11 | 07:14 | x | x | x | x | | | | x | | | x |
| 2022010233 | MS6 | 61.98367 | 19.16345 | 73 | 2022-08-11 | 13:43 | x | x | x | x | | | | x | | | x |
| 2022010234 | MS3 | 62.13445 | 18.16307 | 85 | 2022-08-11 | 17:46 | x | x | x | x | | | | x | | | x |
| 2022010235 | US3 | 62.75890 | 19.19565 | 177 | 2022-08-11 | 23:40 | x | x | x | x | | | | x | | | |
| 2022010236 | F18 | 63.31430 | 20.27258 | 104 | 2022-08-12 | 05:14 | x | x | x | x | | | | x | | | x |
| 2022010237 | F13 | 63.78347 | 21.47953 | 64 | 2022-08-12 | 10:53 | x | x | x | x | | | | x | | | x |
| 2022010238 | RR3 | 64.93360 | 22.34595 | 95 | 2022-08-12 | 18:33 | x | x | x | x | | | | x | | | |
| 2022010239 | F2 | 65.38373 | 23.46255 | 82 | 2022-08-13 | 00:01 | x | x | x | x | x | x | | x | x | | |
| 2022010240 | CVI | 65.23368 | 23.56257 | 69 | 2022-08-13 | 02:33 | x | x | x | x | | | | x | | | x |
| 2022010241 | CV | 65.00033 | 23.24617 | 88 | 2022-08-13 | 07:48 | x | x | x | x | | | | x | | | x |
| 2022010242 | RR6 | 64.80037 | 23.47948 | 85 | 2022-08-13 | 10:30 | x | x | x | x | | | | x | | | x |
| 2022010243 | RR7 | 64.73368 | 23.81290 | 39 | 2022-08-13 | 12:40 | x | x | x | x | | | | x | | | x |
| 2022010244 | BO3 | 64.30198 | 22.34347 | 110 | 2022-08-13 | 18:22 | x | x | x | x | x | x | | x | x | | |
| 2022010245 | F15 | 63.51677 | 21.51303 | 48 | 2022-08-14 | 01:39 | x | x | x | x | | | | x | | | |
| 2022010246 | F16 | 63.51683 | 21.06277 | 49 | 2022-08-14 | 03:59 | x | x | x | x | x | x | | x | | | |
| 2022010247 | US7 | 62.60018 | 20.82968 | 27 | 2022-08-14 | 13:19 | x | x | x | x | | | | x | | | x |
| 2022010248 | US6B | 62.60010 | 20.26295 | 82 | 2022-08-14 | 15:49 | x | x | x | x | | | | x | | | x |
| 2022010249 | US5B | 62.58615 | 19.96882 | 222 | 2022-08-14 | 18:12 | x | x | x | x | x | x | | x | x | | |
| 2022010250 | F26 | 61.98353 | 20.06297 | 137 | 2022-08-15 | 01:22 | x | x | x | x | | | | x | | | |
| 2022010251 | AALTO_SM | 61.79827 | 20.23660 | 108 | 2022-08-15 | 05:12 | x | | | | | | | | | | |
| 2022010252 | MS9 | 61.76683 | 20.53048 | 101 | 2022-08-15 | 06:48 | x | x | x | x | | | | x | | | x |
| 2022010253 | SR8 | 61.12653 | 20.93002 | 48 | 2022-08-15 | 11:55 | x | x | x | x | | | | x | | | x |
| 2022010254 | SR7 | 61.08350 | 20.59662 | 78 | 2022-08-15 | 13:51 | x | x | x | x | | | | x | | | x |
| 2022010255 | IU1 | 60.76678 | 20.84665 | 34 | 2022-08-15 | 16:58 | x | x | x | x | | | | x | | | x |
| 2022010256 | IU1LAATU | 60.76678 | 20.84665 | 34 | 2022-08-15 | 18:03 | x | | | | | | | x | | | |
| 2022010257 | IU3 | 60.33337 | 21.11328 | 50 | 2022-08-15 | 21:25 | x | x | x | x | | | | x | | | |
| 2022010258 | IU5 | 60.05817 | 21.19848 | 89 | 2022-08-16 | 00:42 | x | x | x | x | | | | x | | | |
| 2022010259 | IU7 | 59.81518 | 21.33663 | 92 | 2022-08-16 | 03:49 | x | x | x | x | x | x | | x | | | x |
| HANKO | HANKO | 59.81435 | 22.94877 | | 2022-08-16 | 11:19 | | | | | | | | | | | |
| HANKO | HANKO | 59.79818 | 23.15000 | | 2022-08-16 | 12:58 | | | | | | | | | | | |
| 2022010260 | LANGDEN | 59.77685 | 23.26280 | 57 | 2022-08-16 | 13:46 | x | x | x | x | x | x | | x | | | x |
| 2022010261 | AMN | 59.69055 | 23.25708 | 55 | 2022-08-16 | 15:51 | x | x | x | x | | | | x | | | x |
| 2022010262 | LL11 | 59.58353 | 23.29695 | 67 | 2022-08-16 | 17:45 | x | x | x | x | | | | x | | | x |
| 2022010263 | F62 | 59.33353 | 23.26355 | 97 | 2022-08-16 | 20:23 | x | x | x | x | | | | x | | | |
| 2022010264 | JML | 59.58190 | 23.62695 | 80 | 2022-08-16 | 23:40 | x | x | x | x | | | | x | | | |
| 2022010265 | LL9 | 59.70012 | 24.03003 | 66 | 2022-08-17 | 02:15 | x | x | x | x | x | x | | x | | | |
| 2022010266 | XII3 | 59.86488 | 23.98520 | 32 | 2022-08-17 | 04:44 | x | x | x | x | | | | x | | | x |
| 2022010267 | GF1 | 59.70498 | 24.68215 | 84 | 2022-08-17 | 07:58 | x | x | x | x | x | x | | x | | | x |
| 2022010268 | LL7 | 59.84652 | 24.83780 | 102 | 2022-08-17 | 10:58 | x | x | x | x | x | x | | x | x | | x |
| 2022010269 | LL6A | 59.91683 | 25.03013 | 72 | 2022-08-17 | 13:43 | x | x | x | x | | | | x | | | x |
| 2022010270 | AALTO_HKI | 59.96487 | 25.23147 | 71 | 2022-08-17 | 16:38 | x | | | | | | | | | | x |
| 2022010271 | SLVirtausmit | 59.97195 | 25.22543 | 32 | 2022-08-17 | 17:07 | | | | | | | | | | | |
| 2022010272 | LL5 | 59.91685 | 25.59702 | 69 | 2022-08-17 | 19:07 | x | x | x | x | | | | x | | | |
| 2022010273 | GF2 | 59.83850 | 25.85682 | 85 | 2022-08-17 | 22:10 | x | x | x | x | | | | x | | | |
| 2022010274 | LL3A | 60.06718 | 26.34688 | 68 | 2022-08-18 | 01:43 | x | x | x | x | x | x | | x | x | | |
| 2022010275 | HAAPASAARI | 60.19317 | 27.11592 | 62 | 2022-08-18 | 06:10 | x | x | x | x | | | | x | | | x |
| 2022010276 | XV1 | 60.25000 | 27.24705 | 65 | 2022-08-18 | 08:11 | x | x | x | x | x | x | | x | | | x |
| 2022010277 | FEI-1 | 60.19362 | 26.49773 | 49 | 2022-08-18 | 13:19 | x | x | x | x | | | | x | | | x |
| 2022010278 | XIV3 | 60.20312 | 26.19285 | 76 | 2022-08-18 | 15:32 | x | x | x | x | | | | x | | | x |
| 2022010279 | FEI-2 | 60.12482 | 26.14845 | 42 | 2022-08-18 | 17:24 | x | x | x | x | | | | x | | | x |
| 2022010280 | FEI-3 | 60.06727 | 25.54380 | 53 | 2022-08-18 | 21:22 | x | x | x | x | | | | x | | | |
| 2022010281 | NOPAT | 59.91687 | 25.03022 | 82 | 2022-08-19 | 00:42 | x | | | | | | | | | | |
| 2022010282 | AALTO_STAD | 60.12373 | 24.97528 | 22 | 2022-08-19 | 06:22 | x | | | | | | | | | | x |
| HELSINKI | HELSINKI | 60.16182 | 24.90157 | | 2022-08-19 | 07:54 | | | | | | | | | | | |

Parameters: ox = oxygen, nu = nutrients, ph = phytoplankton, zo = zooplankton, be = benthos, chl = chlorophyll a, oil = dissolved oil, tox = phytotoxins.