

# CRUISE REPORT



*R/V Aranda*

Cruise 07/2021

COMBINE 3, leg II  
10.8.2021 – 13.8.2021

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

**Objectives of the cruise**

The objectives of the cruise were:

- 1) Monitoring of the Gulf of Finland. Measured parameters were temperature, salinity, oxygen, oil, nutrients, pH, chlorophyll a, secchi depth, phytoplankton, zooplankton, benthic animals, phycotoxins, hazardous substances from the sediments.
- 2) Further, a mussel cage was lifted up for later biomarker and hazardous substance analysis, a hydrophone was planned to be lifted up, and a wave buoy was lifted up for maintenance work and put back to sea. In addition, video footage and interviews were planned with two separate film crews and zooplankton was collected for further metabolism analysis by Novia researchers.

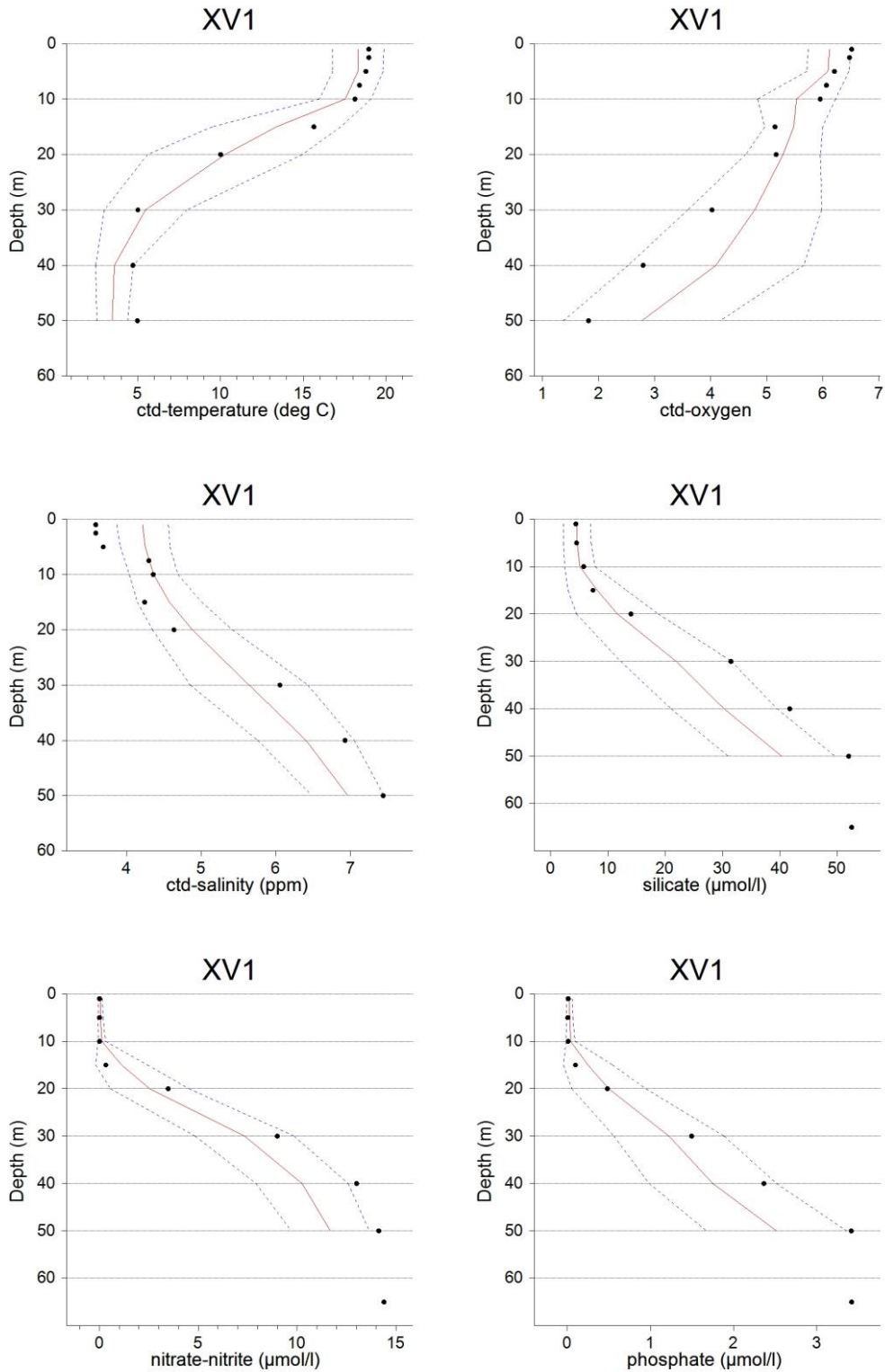
Table 1 The scientific crew

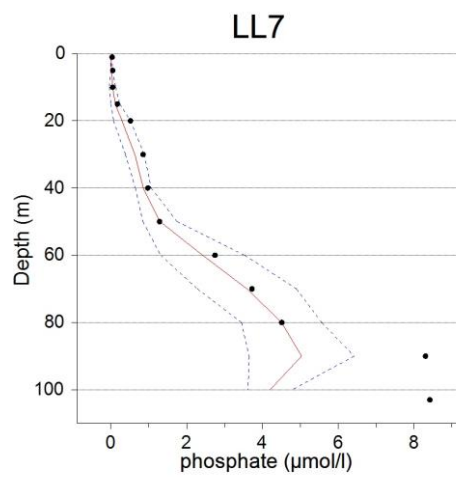
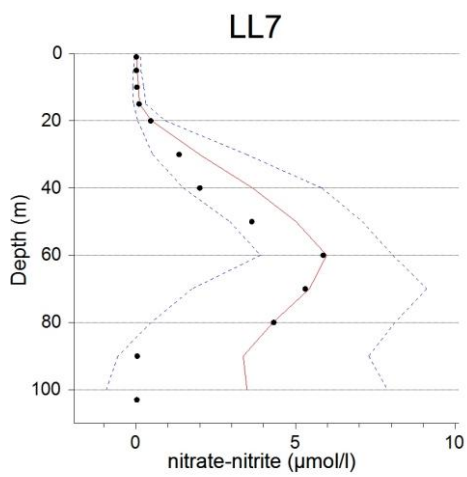
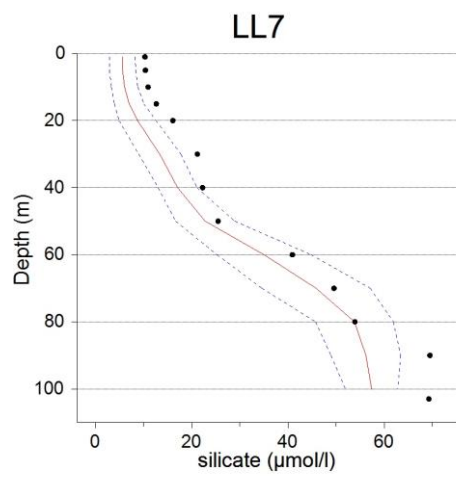
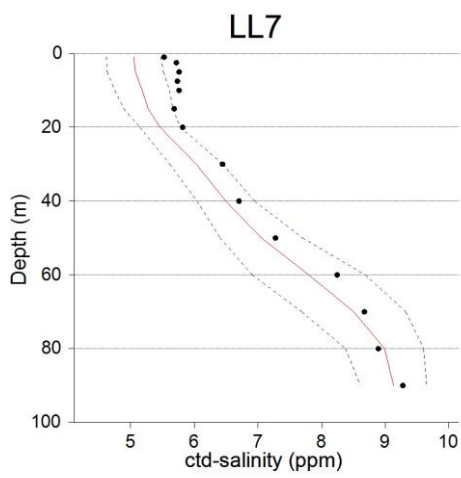
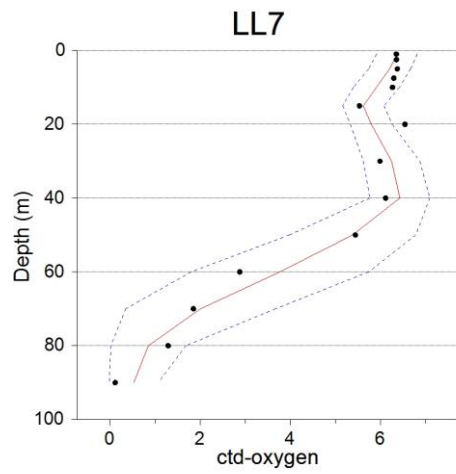
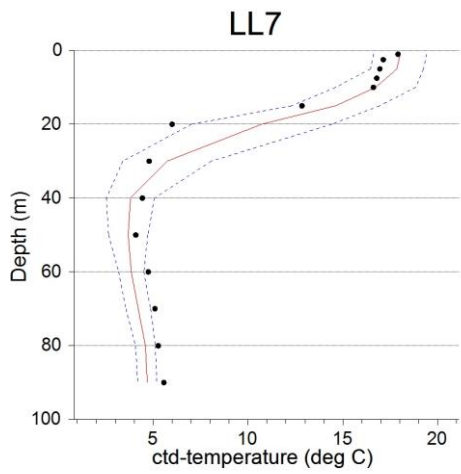
<b>Name</b>	<b>On board</b>	<b>Organization</b>
Maiju Lehtiniemi	10.-13.8.2021	SYKE
Heini Jalli	10.-13.8.2021	IL
Pia Varmanen	10.-13.8.2021	SYKE
Ilkka Lastumäki	10.-13.8.2021	SYKE
Tanja Kinnunen	10.-13.8.2021	SYKE
Pekka Kosloff	10.-13.8.2021	SYKE
Sami Pusa	10.-13.8.2021	SYKE
Outi Setälä	10.-13.8.2021	SYKE
Tarja Katajisto	10.-13.8.2021	SYKE
Jere Riikonen	10.-13.8.2021	SYKE
Mira Granlund	10.-13.8.2021	SYKE
Juha Flinkman	10.-13.8.2021	SYKE
Henry Vallius	10.-13.8.2021	GTK
Mikko Kinnunen	10.-13.8.2021	GTK
Joakim Pusenius	10.-13.8.2021	Freelance photographer
Juha Portaankorva	10.-13.8.2021	YLE
Turkka Korkiamäki	10.-13.8.2021	YLE
Lisa Naeve	10.-13.8.2021	Novia
Ella Weissenberg	10.-13.8.2021	Novia
Antti Räike	10.-13.8.2021	SYKE
Raisa Turja	10.-13.8.2021	SYKE



unchanged from the early 1990s. At the same time as load has decreased, the halocline of the main basin of the Baltic Sea has increased in elevation, and large amounts of phosphorus have flowed into the Gulf of Finland with deep water from the main basin. The decrease in phosphorus load may partly explain the reversal of eutrophication in the eastern Gulf of Finland, where, in fact, the effects of the large emission reductions in Russia should be first observed.

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





## 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
HANKO	HANKO	59.82323	22.94817		2021-08-10	15:57											
2021010349	LANGDEN	59.77682	23.26297	57	2021-08-10	17:56	x	x	x	x	x	x		x			x
2021010350	AMN	59.69052	23.25735	55	2021-08-10	21:03	x	x	x	x				x			
2021010351	LL11	59.58342	23.29673	68	2021-08-10	22:40	x	x	x	x				x			
2021010352	F62	59.33357	23.26357	97	2021-08-11	01:46	x	x	x	x				x			
2021010353	JML	59.58187	23.62682	80	2021-08-11	05:23	x	x	x	x				x			x
2021010354	LL9	59.70020	24.03015	67	2021-08-11	08:00	x	x	x	x	x	x		x			x
2021010355	XII3	59.86418	23.98592	36	2021-08-11	11:07	x	x	x	x				x			x
2021010356	GF1	59.70500	24.68217	84	2021-08-11	14:38	x	x	x	x	x	x		x			x
2021010357	LL7	59.84653	24.83773	104	2021-08-11	18:54	x	x	x	x	x	x		x	x		
2021010358	LL6A	59.91685	25.03010	73	2021-08-11	22:25	x	x	x	x				x			
2021010359	SLVirtausmit	59.96625	25.22740		2021-08-12	00:39											
2021010360	AALTO_HKI	59.96660	25.22892	62	2021-08-12	00:47	x										
2021010361	LL5	59.91685	25.59702	69	2021-08-12	03:51	x	x	x	x				x			x
2021010362	GF2	59.83852	25.85687	85	2021-08-12	06:13	x	x	x	x							x
2021010363	LL3A	60.06712	26.34662	69	2021-08-12	09:58	x	x	x	x	x	x		x	x		x
2021010364	HAAPASAARI	60.19322	27.11583	62	2021-08-12	14:19	x	x	x	x				x			x
2021010365	CAGEKOTKA	60.40130	26.95308	21	2021-08-12	17:24	x										
2021010366	XV1	60.24995	27.24705	66	2021-08-12	20:23	x	x	x	x	x	x		x			
2021010367	SLHYDROPHONE	60.24870	27.24763	67	2021-08-13	00:04	x										
2021010368	FEI-1	60.19368	26.49767	49	2021-08-13	04:20	x	x	x	x				x			x
2021010369	XIV3	60.20320	26.19283	78	2021-08-13	06:44	x	x	x	x				x			x
2021010370	FEI-2	60.12483	26.14838	42	2021-08-13	08:39	x	x	x	x				x			x
2021010371	FEI-3	60.06735	25.54382	54	2021-08-13	11:56	x	x	x	x				x			x
HELSINKI	HELSINKI	60.16180	24.90158		2021-08-13	15:44											

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