



RV Aranda

CRUISE PLAN

COMBINE2 2017, 7/2017 26.5. - 10.6.2017

Description of the cruise

The COMBINE2 expedition contributes to the HELCOM Baltic Sea integrated chemical and biological monitoring programme, focusing especially on macrozoobenthos and near-bottom water oxygen levels in the open sea area. It also contributes to the long-term monitoring of macrozoobenthic communities of the SYKE Marine Research Centre. In addition, water and sediment samples are taken for the monitoring of radioactive substances (HELCOM-MORS and Finnish Radiation and Nuclear Safety Authority). Other monitoring activities are related to the requirements of the Marine Strategy Framework Directive (MSFD), including collection of microplastics in water, deployment of mussel cages for monitoring of polycyclic aromatic compounds (PAH) along the coastline, measuring trace metal concentration in coastal waters, analysis of tributyltin compounds in open-sea sediments, and monitoring changes in bottom integrity by echosounding. Also a number of experimental studies are executed aboard, including oil and microplastics exposure experiments using zooplankton.

Scientific staff:

Chief scientists:	Mika Raateoja	SYKE	26.05. – 28.05.2017
	Kari Lehtonen	SYKE	30.05. – 10.06.2017

Other staff:

FMI	26.05. – 28.05.2017
SYKE	26.05. – 10.06.2017
SYKE	30.05. – 10.06.2017
FMI	30.05. – 03.06.2017
FMI	26.05. – 03.06.2017
SYKE	26.05. – 28.05.2017
SYKE	26.05. – 10.06.2017
SYKE	26.05. – 10.06.2017
SYKE	26.05. – 03.06.2017
SYKE	26.05. – 10.06.2017
SYKE	26.05. – 10.06.2017
SYKE	26.05. – 10.06.2017
SYKE	26.05. – 10.06.2017
SYKE	26.05. – 28.05.2017
SYKE	26.05. – 03.06.2017
SYKE	26.05. – 10.06.2017
SYKE	26.05. – 28.05.2017
SYKE	26.05. – 28.05.2017
SOI/RU	26.05. – 10.06.2017
SOI/RU	26.05. – 10.06.2017
SYKE	30.05. – 03.06.2017
SYKE	05.06. – 10.06.2017
SYKE	30.05. – 03.06.2017
SYKE	30.05. – 03.06.2017
SYKE	30.05. – 10.06.2017
SYKE	30.05. – 10.06.2017
FMI	05.06. – 10.06.2017

FMI	05.06. – 10.06.2017
SYKE	05.06. – 10.06.2017
SYKE	05.06. – 10.06.2017
SYKE	05.06. – 10.06.2017
SYKE	05.06. – 10.06.2017
SYKE	05.06. – 10.06.2017
BSAG	05.06. – 10.06.2017
BSAG	05.06. – 10.06.2017
MML	05.06. – 10.06.2017

Departure from: HELSINKI
Departure time: Friday 26.05.2017 at 07:00

Cruising speed: 11,0 knots
Average station time: 2 h 0 min.

Arrival to: HELSINKI
Arrival time: Saturday 10.06.2017 at 15:55

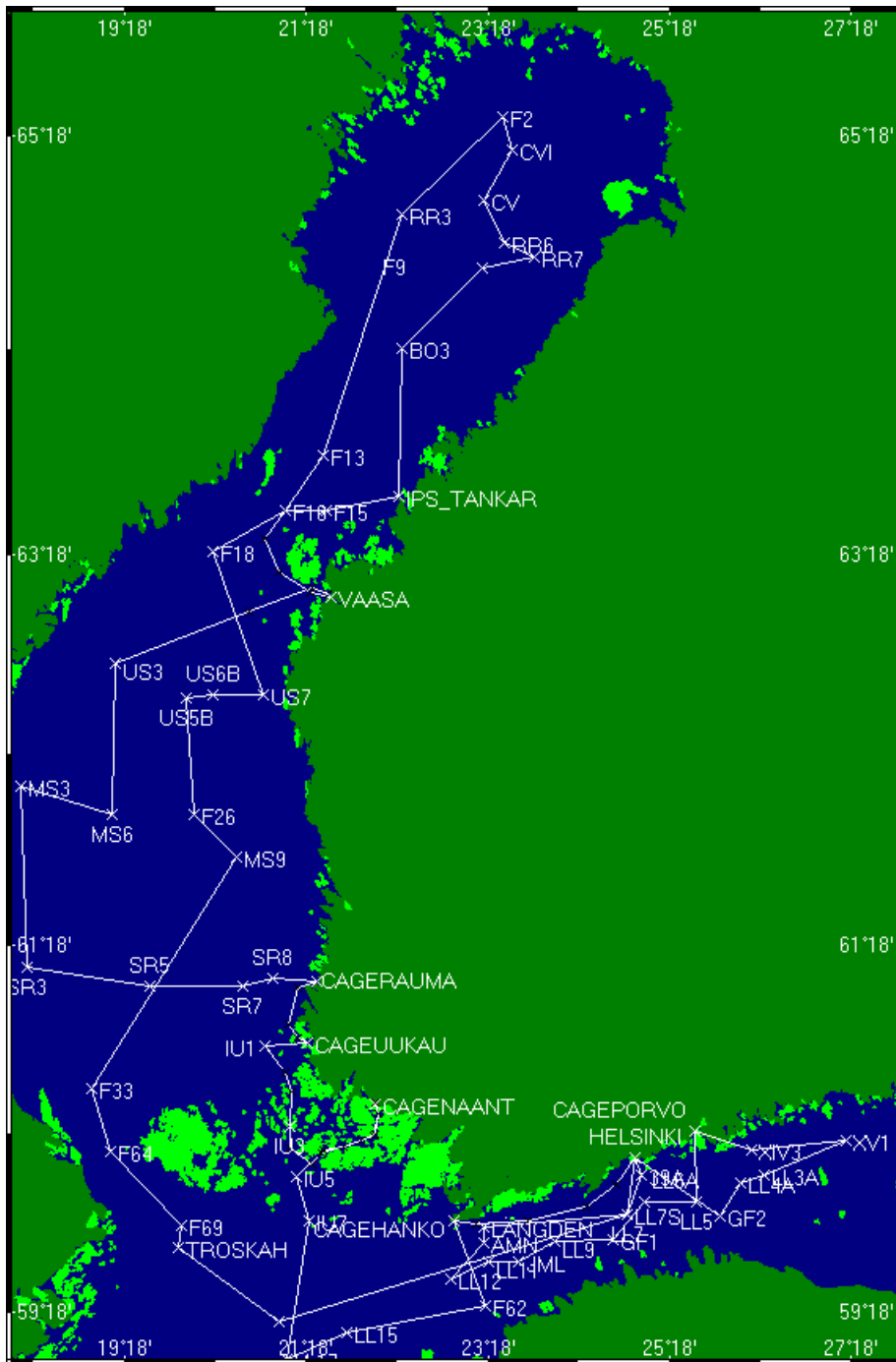
Duration of the cruise: 15 days 8 h 55 min
Length of the cruise: 1859,71 nautical miles
Number of stations 61. Points with name "P" are just route points without observations.

Route:

Nro	Station	Lat.	Long.	Depth [m]	Arrival		Durat. hh:mm	Speed knots	
					hh:mm	dy dd.mm.yyyy			
0	HELSINKI	60°09.55'	24°55.37'	0	07:00	Fr	26.05.2017	0:00	S 11,0
1	39A	60°04.01'	24°58.81'	41	07:31	Fr	26.05.2017	0:45	S 11,0
2	LL7S	59°51.01'	24°49.81'	78	09:31	Fr	26.05.2017	2:30	S 11,0
3	LÄNGDEN	59°46.36'	23°15.59'	57	16:21	Fr	26.05.2017	1:45	S 11,0
4	AMN	59°41.43'	23°15.43'	56	18:33	Fr	26.05.2017	1:30	S 11,0
5	LL12	59°29.01'	22°53.81'	82	21:33	Fr	26.05.2017	2:30	S 11,0
6	LL11	59°35.01'	23°17.81'	68	01:17	Sa	27.05.2017	1:30	S 11,0
7	JML	59°34.91'	23°37.61'	80	03:42	Sa	27.05.2017	2:00	S 11,0
8	LL9	59°42.01'	24°01.81'	69	06:59	Sa	27.05.2017	2:30	S 11,0
9	GF1	59°42.30'	24°40.93'	84	11:17	Sa	27.05.2017	2:30	S 11,0
10	LL6A	59°55.01'	25°01.81'	75	15:16	Sa	27.05.2017	1:30	S 11,0
11	LL5	59°55.01'	25°35.82'	70	18:19	Sa	27.05.2017	1:30	S 11,0
12	CAGEPORVO	60°18.13'	25°34.40'	?	21:56	Sa	27.05.2017	2:00	S 11,0
13	XIV3	60°12.19'	26°11.57'	77	01:41	Su	28.05.2017	0:45	S 11,0
14	XV1	60°15.00'	27°14.82'	64	05:18	Su	28.05.2017	3:00	S 11,0
15	LL3A	60°04.03'	26°20.80'	68	10:57	Su	28.05.2017	3:30	S 11,0
16	LL4A	60°01.01'	26°04.81'	60	15:13	Su	28.05.2017	1:30	S 11,0
17	GF2	59°50.31'	25°51.41'	84	17:52	Su	28.05.2017	1:30	S 11,0
18	HELSINKI	60°09.55'	24°55.37'	0	22:28	Su	28.05.2017	12:00	S 11,0
19	39A	60°04.01'	24°58.81'	41	10:59	Mo	29.05.2017	2:00	S 11,0
20	HELSINKI	60°09.55'	24°55.37'	0	13:31	Mo	29.05.2017	20:00	S 11,0
21	P	60°00.66'	24°42.57'	-	10:30	Tu	30.05.2017	0:00	S 11,0
22	P	59°53.16'	24°22.60'	-	11:39	Tu	30.05.2017	0:00	S 11,0
23	P	59°48.51'	23°44.81'	-	13:25	Tu	30.05.2017	0:00	S 11,0
24	P	59°47.43'	23°09.87'	-	15:01	Tu	30.05.2017	0:00	S 10,0
25	CAGEHANKO	59°48.57'	22°55.86'	?	15:44	Tu	30.05.2017	8:00	S 10,0
26	F62	59°20.01'	23°15.81'	95	02:46	We	31.05.2017	1:00	S 11,0
27	LL15	59°11.00'	21°44.81'	126	08:04	We	31.05.2017	2:00	S 11,0
28	LL17	59°02.00'	21°04.77'	171	12:07	We	31.05.2017	2:00	S 11,0
29	IU7	59°48.91'	21°20.20'	92	18:26	We	31.05.2017	1:00	S 11,0
30	IU5	60°03.49'	21°11.90'	89	20:49	We	31.05.2017	1:00	S 11,0
31	P	60°11.32'	21°27.75'	-	22:50	We	31.05.2017	0:00	S 10,0
32	P	60°15.12'	21°53.78'	-	00:10	Th	01.06.2017	0:00	S 10,0
33	P	60°17.24'	22°02.97'	-	00:41	Th	01.06.2017	0:00	S 10,0
34	P	60°24.21'	22°05.26'	-	01:23	Th	01.06.2017	0:00	S 10,0
35	P	60°27.39'	22°03.12'	-	01:43	Th	01.06.2017	0:00	S 10,0
36	CAGENAANT	60°27.13'	22°03.09'	?	01:45	Th	01.06.2017	2:00	S 10,0
37	P	60°23.91'	22°05.87'	-	04:06	Th	01.06.2017	0:00	S 10,0
38	P	60°16.79'	22°02.35'	-	04:50	Th	01.06.2017	0:00	S 10,0
39	P	60°13.07'	21°42.30'	-	05:53	Th	01.06.2017	0:00	S 10,0

40	P	60°12.23'	21°29.43'	-	06:32	Th	01.06.2017	0:00	S	10,0
41	P	60°07.51'	21°21.32'	-	07:09	Th	01.06.2017	0:00	S	10,0
42	P	60°12.46'	21°07.39'	-	08:00	Th	01.06.2017	0:00	S	10,0
43	IU3	60°20.00'	21°06.80'	48	08:46	Th	01.06.2017	2:00	S	10,0
44	P	60°31.23'	21°08.76'	-	11:53	Th	01.06.2017	0:00	S	10,0
45	P	60°31.08'	21°08.65'	-	11:54	Th	01.06.2017	0:00	S	11,0
46	P	60°37.39'	21°04.37'	-	12:30	Th	01.06.2017	0:00	S	11,0
47	IU1	60°46.01'	20°50.80'	33	13:30	Th	01.06.2017	1:00	S	11,0
48	CAGEUUKAU	60°47.01'	21°18.64'	?	15:44	Th	01.06.2017	2:00	S	10,0
49	P	60°48.27'	21°12.60'	-	18:03	Th	01.06.2017	0:00	S	11,0
50	P	60°53.19'	21°06.37'	-	18:35	Th	01.06.2017	0:00	S	11,0
51	P	61°04.41'	21°12.31'	-	19:38	Th	01.06.2017	0:00	S	11,0
52	CAGERAUMA	61°06.55'	21°24.63'	?	20:13	Th	01.06.2017	2:00	S	10,0
53	SR8	61°07.59'	20°55.80'	46	23:36	Th	01.06.2017	1:00	S	11,0
54	SR7	61°05.01'	20°35.79'	78	01:31	Fr	02.06.2017	2:00	S	11,0
55	SR5	61°05.00'	19°34.78'	126	06:12	Fr	02.06.2017	4:00	S	11,0
56	SR3	61°11.00'	18°13.80'	72	13:48	Fr	02.06.2017	2:00	S	11,0
57	MS3	62°08.07'	18°09.78'	84	20:59	Fr	02.06.2017	2:00	S	11,0
58	MS6	61°59.02'	19°09.81'	72	01:40	Sa	03.06.2017	2:00	S	11,0
59	US3	62°45.53'	19°11.74'	182	07:54	Sa	03.06.2017	2:00	S	11,0
60	P	63°00.89'	20°40.67'	-	13:50	Sa	03.06.2017	0:00	S	11,0
61	P	63°08.18'	21°21.45'	-	15:39	Sa	03.06.2017	0:00	S	11,0
62	P	63°06.30'	21°31.71'	-	16:06	Sa	03.06.2017	0:00	S	11,0
63	VAASA	63°05.21'	21°33.78'	0	16:14	Sa	03.06.2017	44:00	S	11,0
64	P	63°06.67'	21°20.34'	-	12:48	Mo	05.06.2017	0:00	S	11,0
65	P	63°12.69'	20°59.53'	-	13:49	Mo	05.06.2017	0:00	S	11,0
66	P	63°22.66'	20°50.10'	-	14:48	Mo	05.06.2017	0:00	S	11,0
67	F16	63°31.01'	21°03.77'	45	15:44	Mo	05.06.2017	2:00	S	11,0
68	F13	63°47.01'	21°28.77'	65	19:31	Mo	05.06.2017	1:00	S	11,0
69	RR3	64°56.02'	22°20.76'	96	03:06	Tu	06.06.2017	2:00	S	11,0
70	F2	65°23.02'	23°27.76'	91	08:39	Tu	06.06.2017	2:00	S	11,0
71	CVI	65°14.02'	23°33.77'	71	11:30	Tu	06.06.2017	2:00	S	11,0
72	CV	65°00.02'	23°14.77'	89	14:58	Tu	06.06.2017	2:00	S	11,0
73	RR6	64°48.02'	23°28.77'	86	18:11	Tu	06.06.2017	2:00	S	11,0
74	RR7	64°44.02'	23°48.77'	39	21:03	Tu	06.06.2017	1:00	S	11,0
75	AALTOPM	64°41.05'	23°14.35'	?	23:24	Tu	06.06.2017	2:00	S	10,0
76	BO3	64°18.12'	22°20.59'	109	04:40	We	07.06.2017	2:00	S	11,0
77	IPS_TANKAR	63°35.17'	22°18.89'	?	10:34	We	07.06.2017	2:00	S	11,0
78	F15	63°31.01'	21°30.78'	49	14:33	We	07.06.2017	2:00	S	11,0
79	F16	63°31.01'	21°03.77'	45	17:39	We	07.06.2017	0:00	S	11,0
80	F18	63°18.86'	20°16.36'	105	19:52	We	07.06.2017	2:00	S	11,0
81	US7	62°36.01'	20°49.78'	23	02:00	Th	08.06.2017	1:00	S	11,0
82	US6B	62°36.01'	20°15.78'	83	04:26	Th	08.06.2017	3:00	S	11,0
83	US5B	62°35.17'	19°58.13'	214	08:10	Th	08.06.2017	3:00	S	11,0
84	F26	61°59.01'	20°03.78'	140	14:28	Th	08.06.2017	2:00	S	11,0
85	MS9	61°46.01'	20°31.83'	101	18:09	Th	08.06.2017	3:00	S	11,0
86	F33	60°31.99'	18°56.26'	135	05:05	Fr	09.06.2017	1:00	S	11,0
87	F64	60°11.34'	19°08.55'	285	08:02	Fr	09.06.2017	3:00	S	11,0
88	F69	59°47.00'	19°55.80'	189	14:07	Fr	09.06.2017	3:00	S	11,0
89	TROSKAH	59°40.02'	19°53.00'	40	17:46	Fr	09.06.2017	2:00	S	10,0
90	AALTOPI	59°15.00'	21°00.00'	98	00:00	Sa	10.06.2017	2:00	S	10,0
91	LL7	59°50.79'	24°50.27'	100	14:12	Sa	10.06.2017	0:00	S	11,0
92	HELSINKI	60°09.55'	24°55.37'	0	15:55	Sa	10.06.2017	0:00	S	11,0

Route map:



Cruise plan is printed at 04.05.2017 a 13:19.