JERICO

JOINT EUROPEAN RESEARCH INFRASTRUCTURE NETWORK FOR COASTAL OBSERVATORIES

BEST PRACTICES IN FERRYBOX MONITORING BY SYKE

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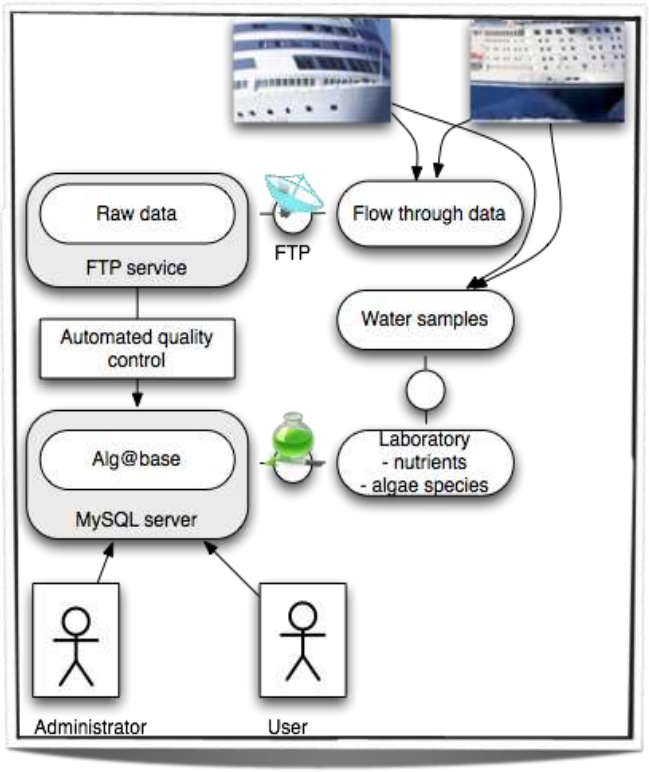
Speaker I Organism I adresse mail

Current Alg@line routes

- Ferry Finnlines cruises between Helsinki and Travemünde, occasionally via Gdansk, SYKE
- Ferry Transpaper from Gothenburg to Kemi in cooperation between SYKE and SMHI
- Ferry Silja Serenade ferry travelling between Helsinki and Stockholm, Uusimaa ELY Centre, SYKE
- MS Brahe along the Finnish coast of the Gulf of Finland during summer months. KAS ELY, Helsinki Environment Centre, SYKE
- The ferry Baltic Prinsess is cruising daily between Tallinn and Helsinki and maintained by Marine Systems Institute (MSI), Tallinn.
- The ferry Victoria is cruising from Tallinn to Stockholm and maintained by Estonian Marine Institute (EMI).

MANAGEMENT



Alg@line dataflow

Automatic watersampler

Flow-through equipment

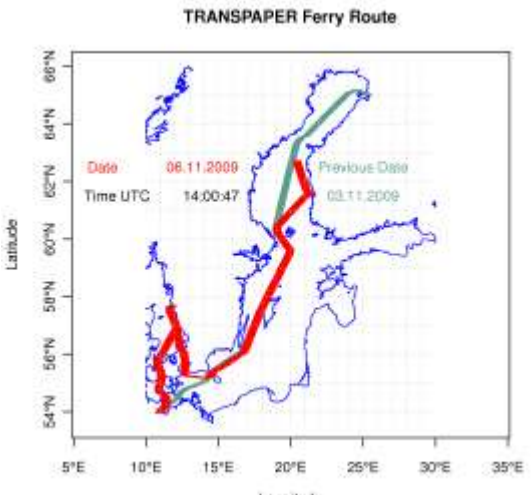
Ferrybox-software

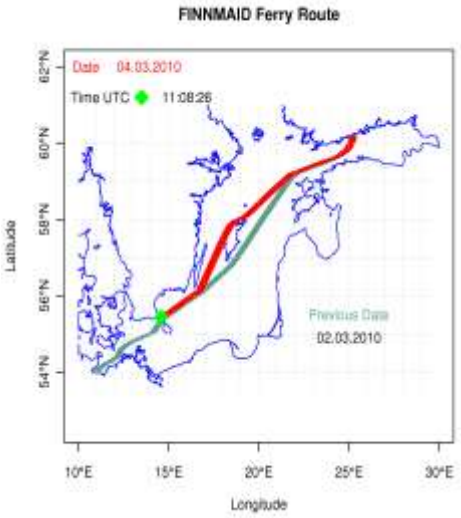
Ferrybox-software controls operations of automatic flow-through and watersampling equipment onboard

Near real time observations on commercial ferries

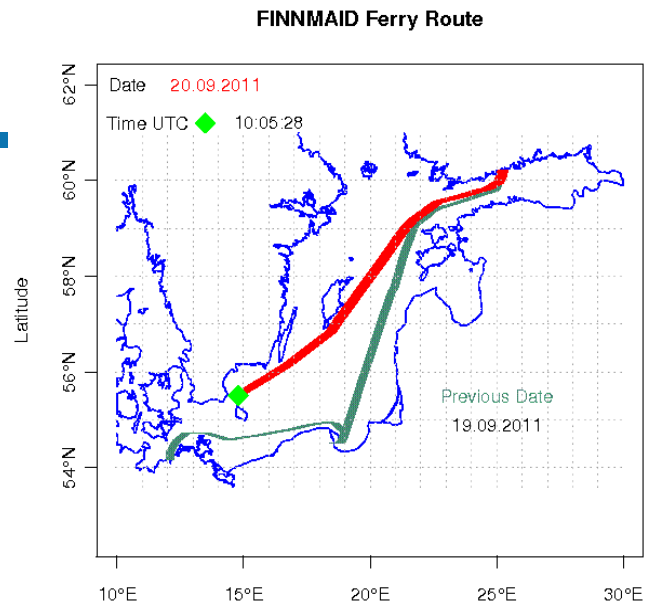
http://www.itameriportaali.fi/en/tietoa/algaline_seuranta/en_GB/algaline_seuranta/

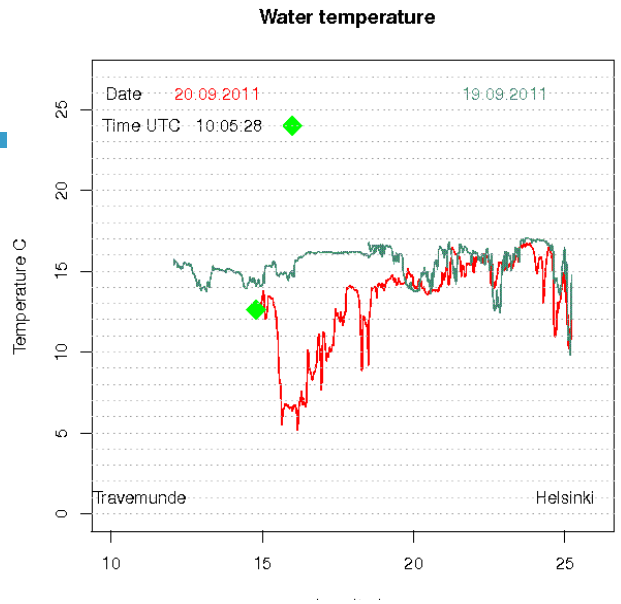
Time, location, from GPS
Salinity, Temperature
Chlorophyll
Phycocyanin
Turbidity
Water samples for nurient analysis
Automatic washing in the harbor

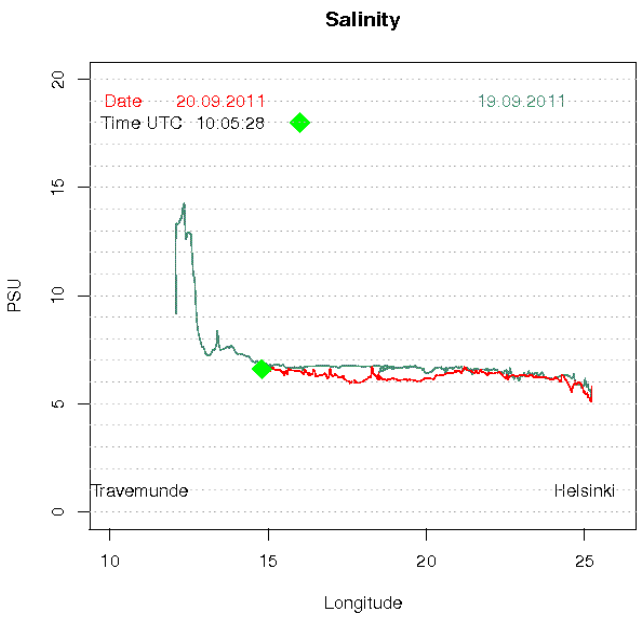


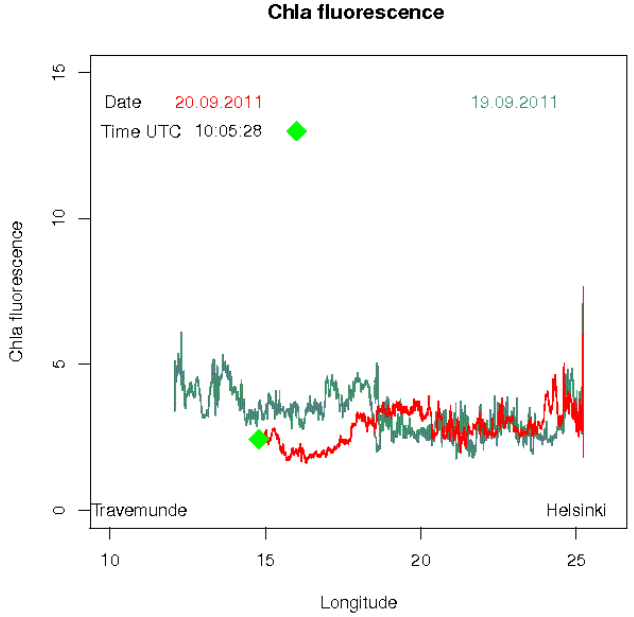


Real time monitoring









FLUOROMETERS AND WASHING SYSTEM

Pneumatic valve

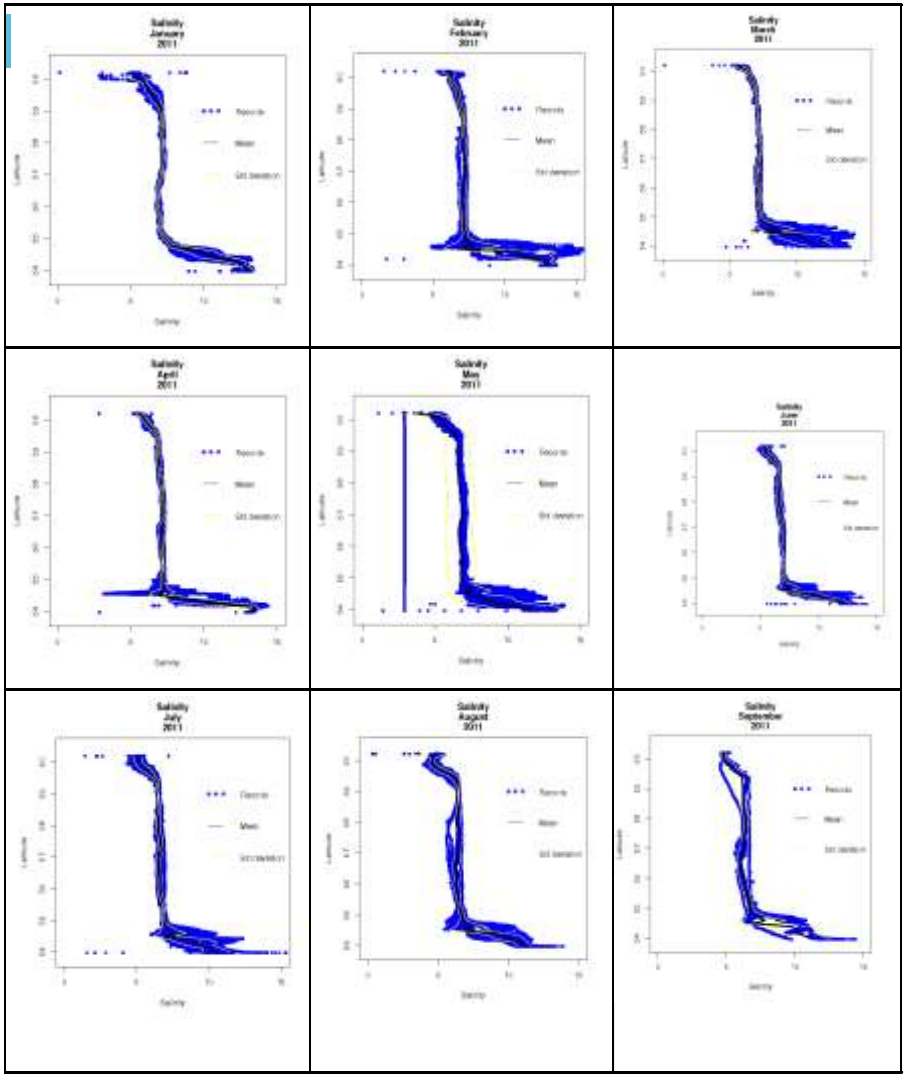
Fluorometer
Termosalinograph
Triton-X 0.1 %
for washing, 1 h in Harbour

Air debubler outside the box

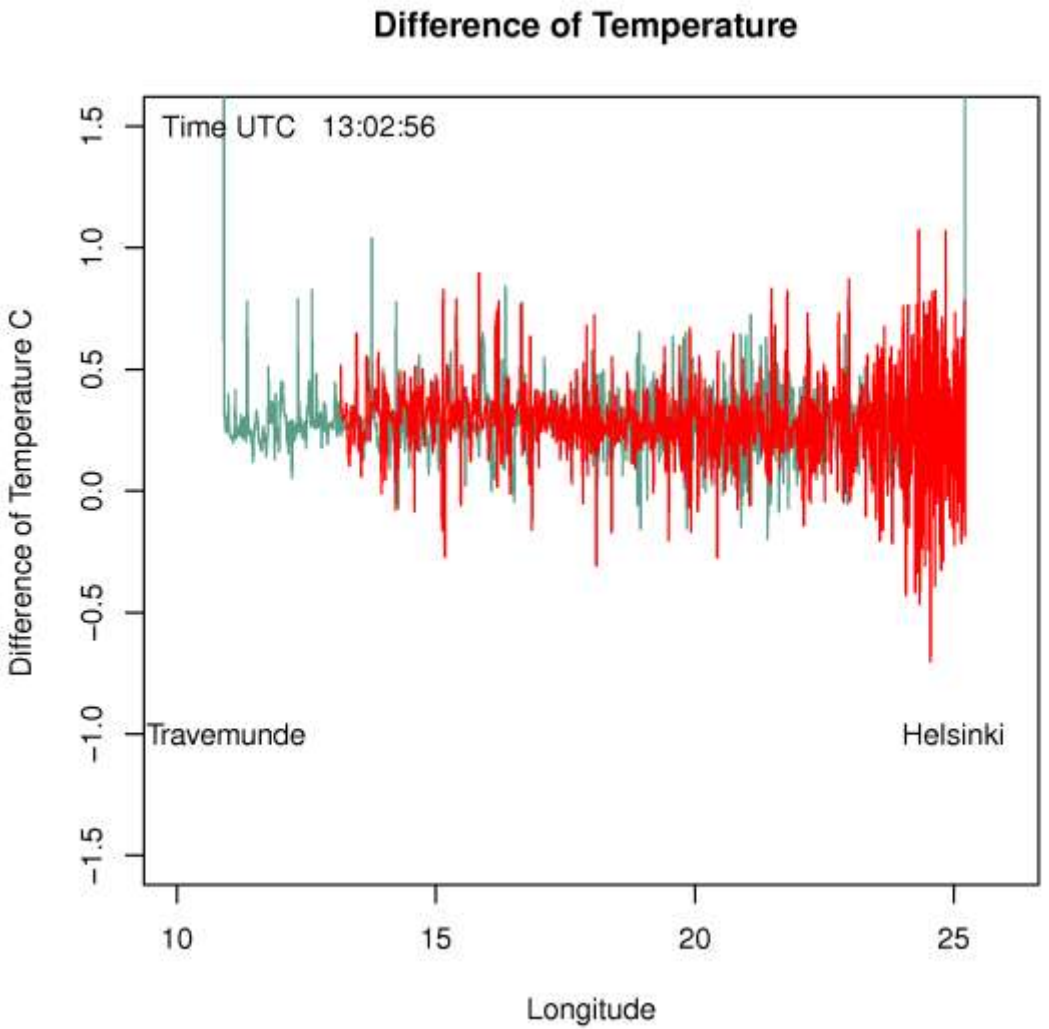
Finnmaid Diary 2010

Week Date Who	Mit- files G=good, U=usefull,but fixed B=bad, leaved to original_files folder If corcections, how Parameters ja georecords original_files	device	Samplin gyes/no maintenance comments
4 27.1.2010 PeMa	FM100121 G FM100123 G FM100124 G FM100126 G	SEABIRD TSG 45 Calibration of conductivity13.1.2010	
7 16.2.2010 PeMa	FM100127 G FM100129 G FM100130 G FM100201 G FM100203 G FM100205 G FM100206 G FM100208 G FM100210 G FM100212 G FM100213 G FM100215 G	SEABIRD TSG 45	Samples ok FM100215 G salinity comparison

SALINITY VARIATION FROM JANUARY TO SEPTEMBER 2011



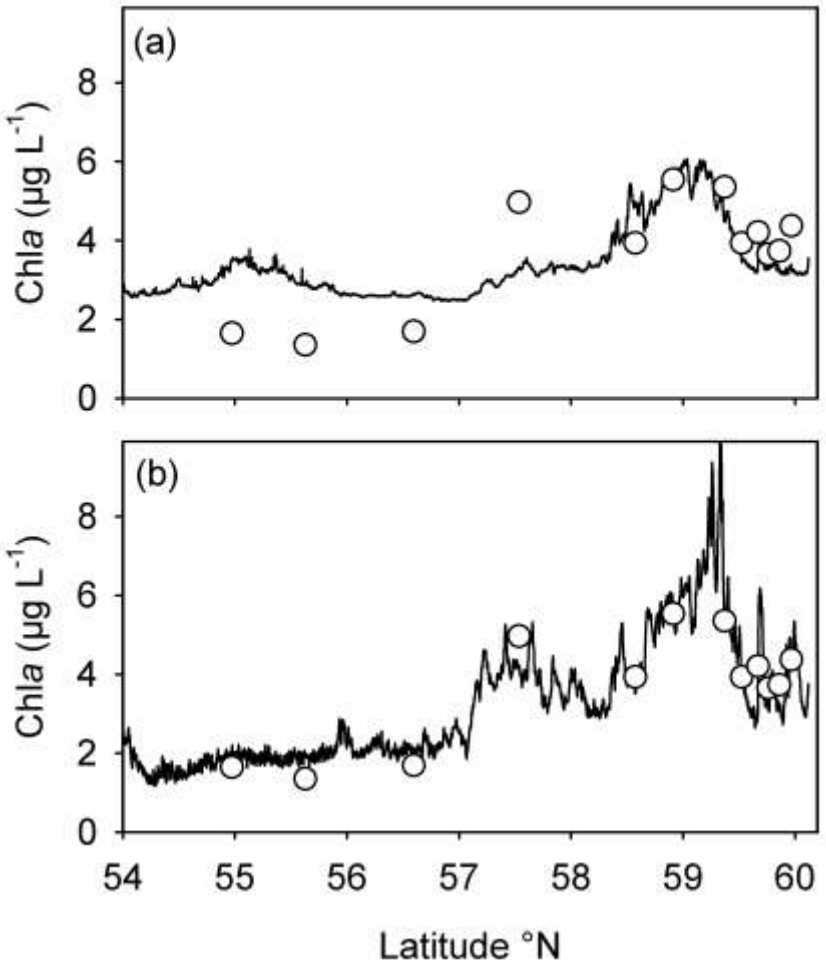
The difference of temperature from termometer by the water inlet and the termosalinograph is used for perliminary quality checking



Real Time Quality Control of biogeochemical measurements , MyOcean flags

Table 1: Quality flag scale. Codes marked in red are mandatory following the RTQC procedure **Code**	**Meaning**
0	No QC was performed
1	Good data
2	Probably good data
3	Bad data that are potentially correctable
4	Bad data
5	Value changed
6	Below detection limit
7	In excess of quoted value
8	Interpolated value
9	Missing value
A	Incomplete information

Measuring both Phycocyanin and Chl*a* fluorescence will improve Chl*a* concentration estimates.



$$[Chla] = b_0 + b_1 * Chla\ Fl$$

$$[Chla] = b_0 + b_1 * Chla\ Fl + b_2 * PC\ Fl$$

MS BRAHE VALIDATION OF CHLOROPHYLL EARLY SUMMER 2012

	Klorofyllin kalibrointi	
	Kalibrointitiedoston nimi	KB2012calHKIYMK.xls
	Välilehden nimi	KB120613
	Chl vs. SochlFl (y= a + b1 * SochlFl)	*Kertoimet*
	Korrelaatiokerroin	0,90
a	Leikkauspiste	0,14
b1	SochlFl	1,07
	Chl vs. SochlFl vs. SopchlFl (y= a + b1 * SochlFl + b2 * SopcFl)	
	Korrelaatiokerroin	0,91
a	Leikkauspiste	1,83
b1	SochlFl	1,09
b2	SopcFl	-38,66
	Chl vs. SochlFl vs. SopchlFl (y= a + b1 * SochlFl + b2 * SopcFl + b3 * Soturb)	
	Korrelaatiokerroin	0,91
a	Leikkauspiste	1,72
b1	SochlFl	1,09
b2	SopcFl	-34,79
b3	Soturb	-0,04

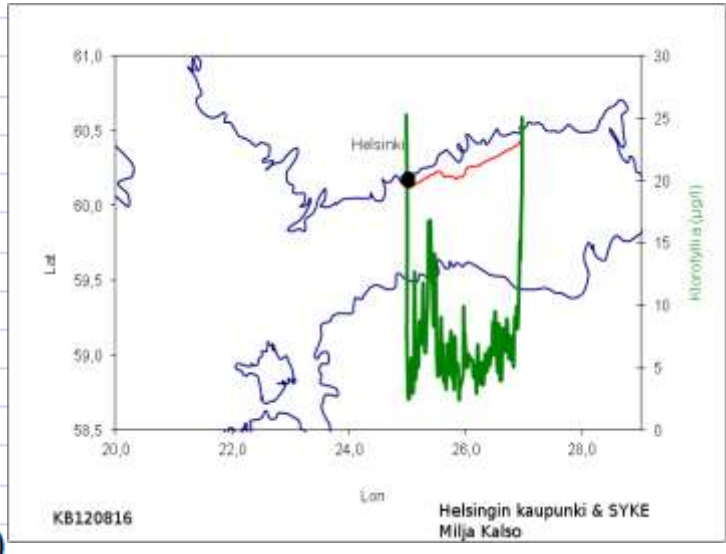
No cyanobacteria

	Klorofyllin kalibrointi	
	Kalibrointitiedoston nimi	KB2012calHKIYMK.xls
	Välilehden nimi	KB120703
	Chl vs. SochlFl (y= a + b1 * SochlFl)	*Kertoimet*
	Korrelaatiokerroin	0,57
a	Leikkauspiste	1,40
b1	SochlFl	1,41
	Chl vs. SochlFl vs. SopchlFl (y= a + b1 * SochlFl + b2 * SopcFl)	
	Korrelaatiokerroin	0,89
a	Leikkauspiste	-2,29
b1	SochlFl	1,90
b2	SopcFl	51,47
	Chl vs. SochlFl vs. SopchlFl (y= a + b1 * SochlFl + b2 * SopcFl + b3 * Soturb)	
	Korrelaatiokerroin	0,93
a	Leikkauspiste	-3,52
b1	SochlFl	1,93
b2	SopcFl	66,74
b3	Soturb	0,49

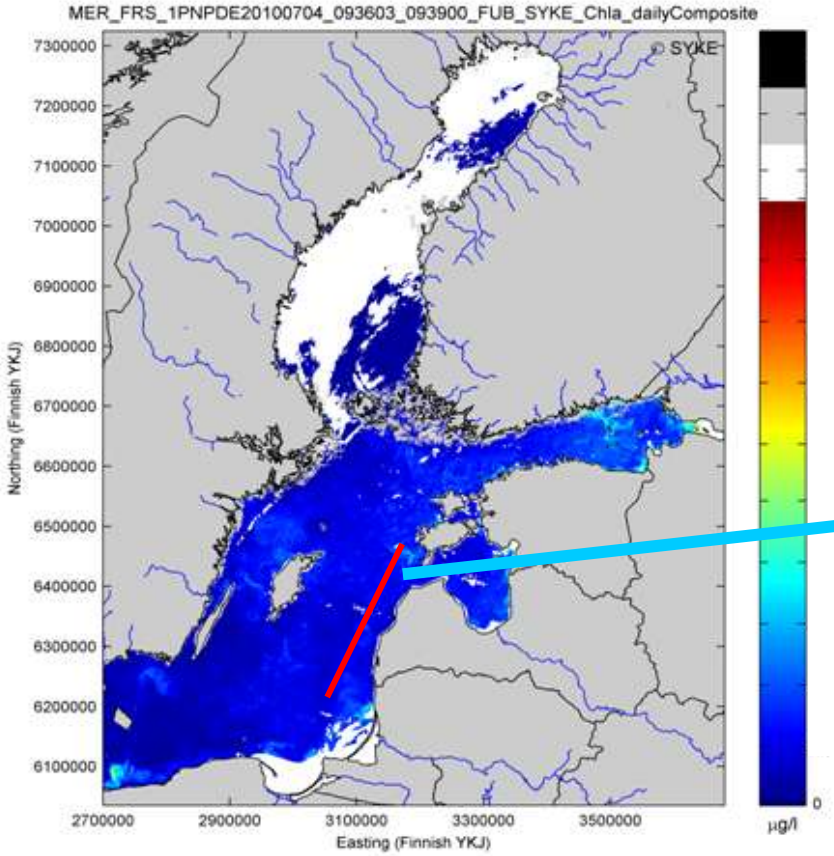
Cynaobacteria present in July

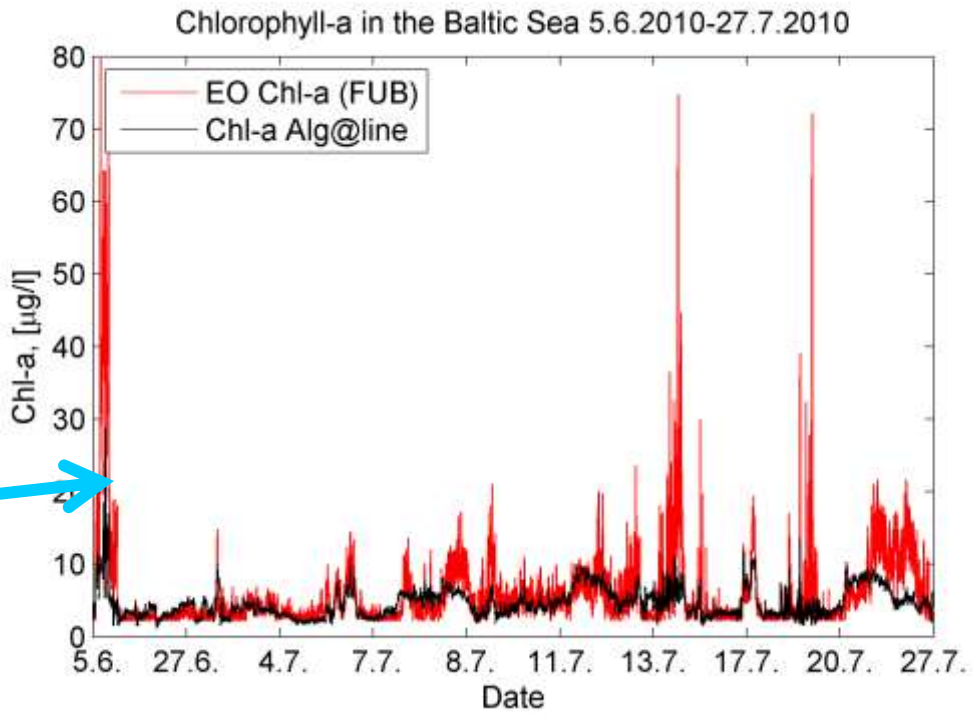
MS BRAHE VALIDATION OF CHLOROPHYLL LATE SUMMER 2012

	Klorofyllin kalibrointi	
	Kalibrointitiedoston nimi	KB2012calHKIYMK.xls
	Välilehden nimi	KB120816
	Chl vs. SochlfI (y= a + b1 * SochlfI)	*Kertoimet*
	Korrelaatiokerroin	0,25
a	Leikkauspiste	18,25
b1	SochlfI	-3,99
	Chl vs. SochlfI vs. SopchlfI (y= a + b1 * SochlfI + b2 * Sopcfl)	
	Korrelaatiokerroin	0,25
a	Leikkauspiste	18,24
b1	SochlfI	-3,99
b2	Sopcfl	0,53
	Chl vs. SochlfI vs. SopchlfI (y= a + b1 * SochlfI + b2 * Sopcfl + b3 * Soturb)	
	Korrelaatiokerroin	0,89
a	Leikkauspiste	-36,94
b1	SochlfI	-0,80
b2	Sopcfl	879,61
b3	Soturb	61,31



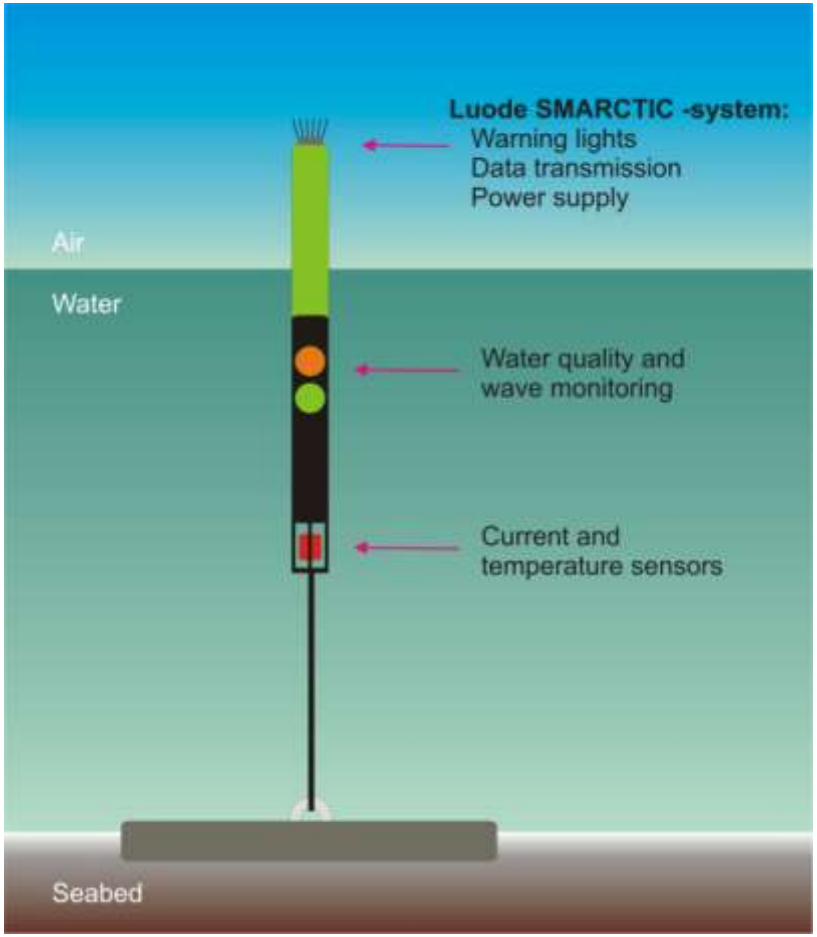
Alg@line Ferrybox Data vs. EO Data Chlorophyll-a





Jenni Attila GEO/SYKE

Measurement water quality observations with navigation buoys

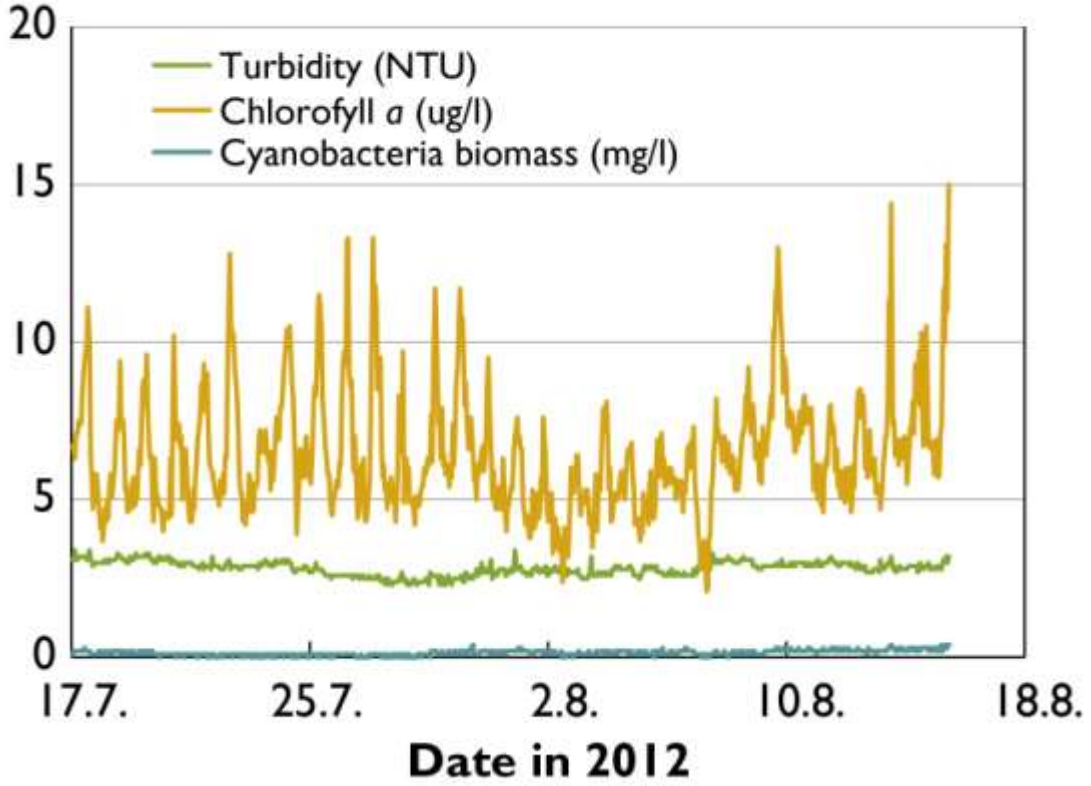


BUOY STRUCTURE

Design of water quality system (Smarctic) buoy system: Luode Consulting Oy

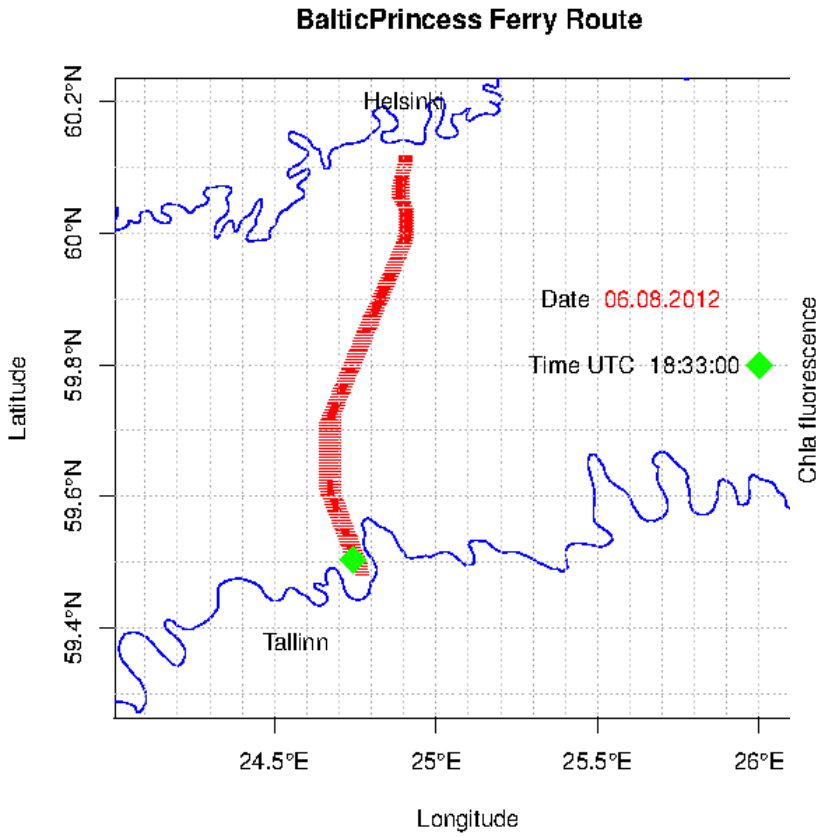
Buoys manufactured by MeriTaito Ltd

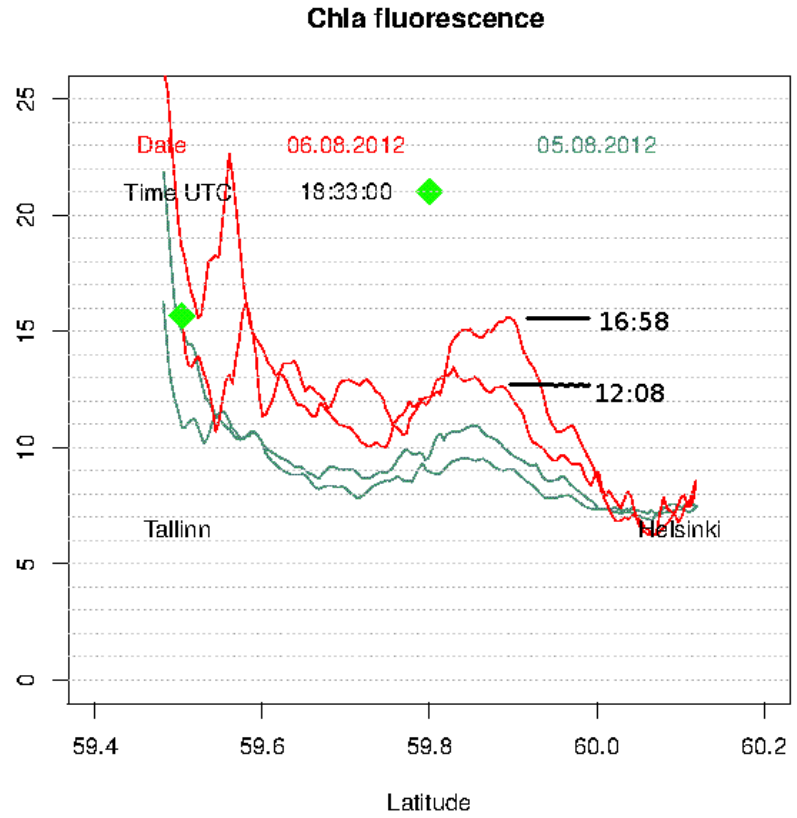
RECORDS FROM OF PYHTÄÄ BUOY



www.luodedata.fi/rauto

Baltic Princess ferrybox NRT observations
Marine Systems Institute, Tallinn, Estonia





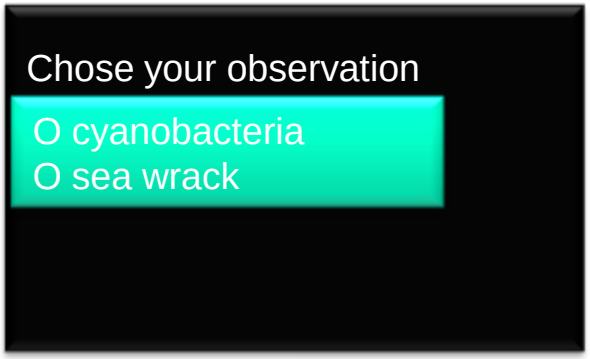
Need for voluntary observations: Algal watch

Algal watch can be downloaded to your mobile

- *Nokia Symbian/Java application http://knowledge.vtt.fi/levavahti*
- *iPhone from Apple Store*
- *Android phone from Google Play searching Levävahti*

Automatic geo-reference

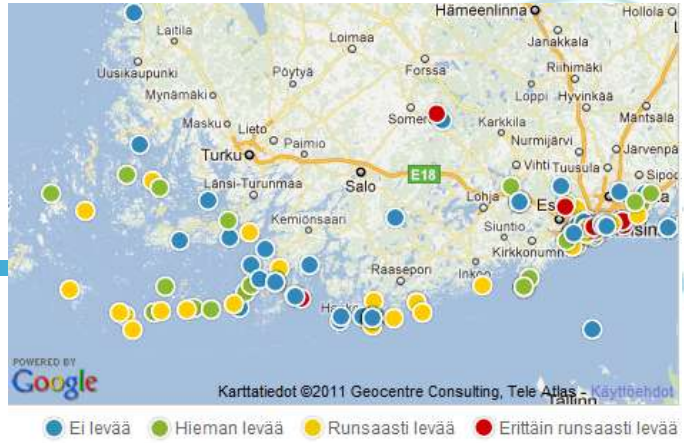
Nokia



Android

iPhone

ALGAL WATCH

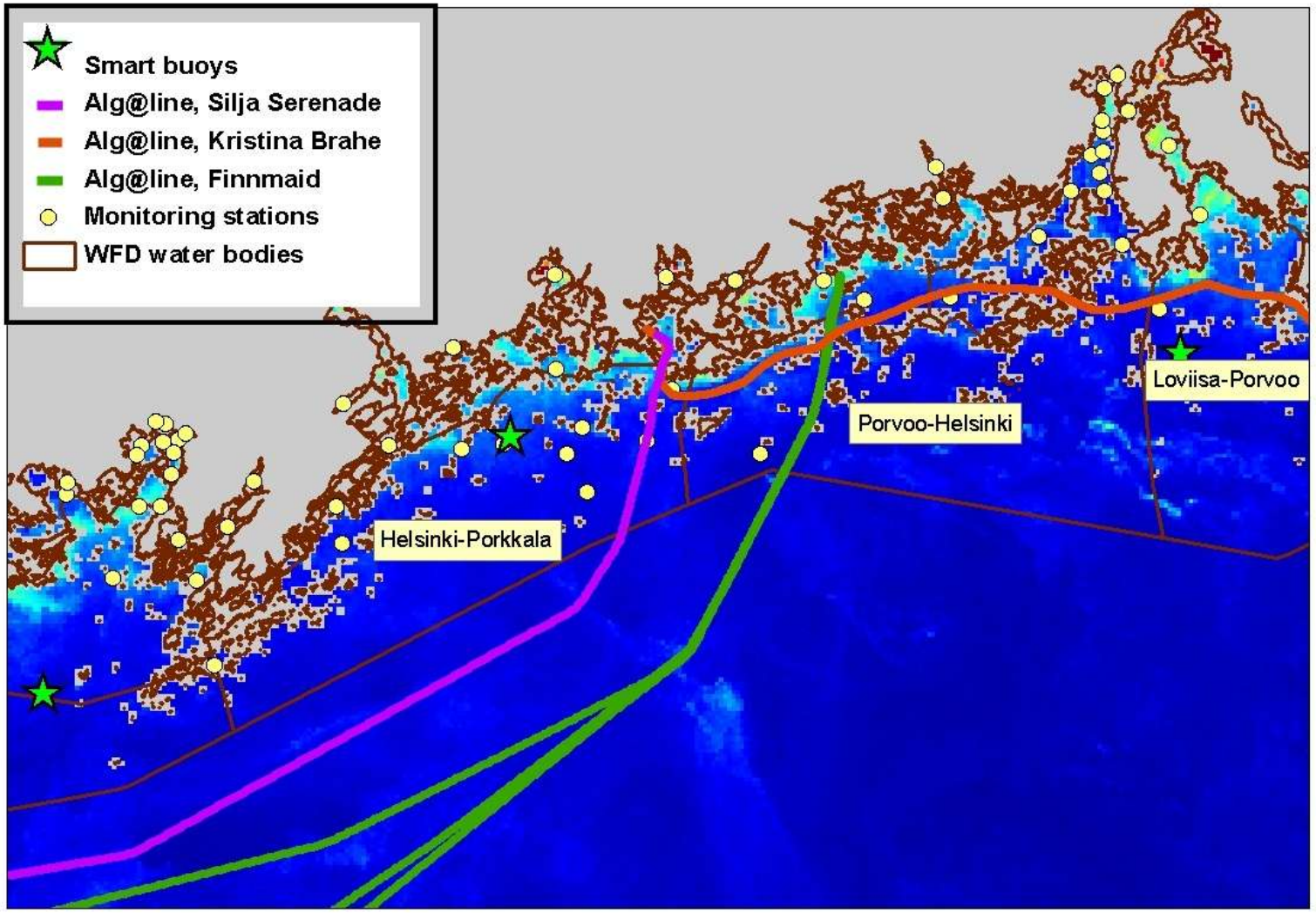


Experience from year 2011:

- Software was easy to use (99 %)
- Heart about it from Järviwiki (30 %)
- Software hard to find from www
- Not interactive software

Expert versus citizen:
Observation was correct 70 %
(0,1,2,3)
Algae yes/no, correctly 93 %

Real-time water quality monitoring with multi-source data



New Alg@line route
St. Petersburg-Helsinki-Bilbao