Current status on the NIVA Ferrybox system

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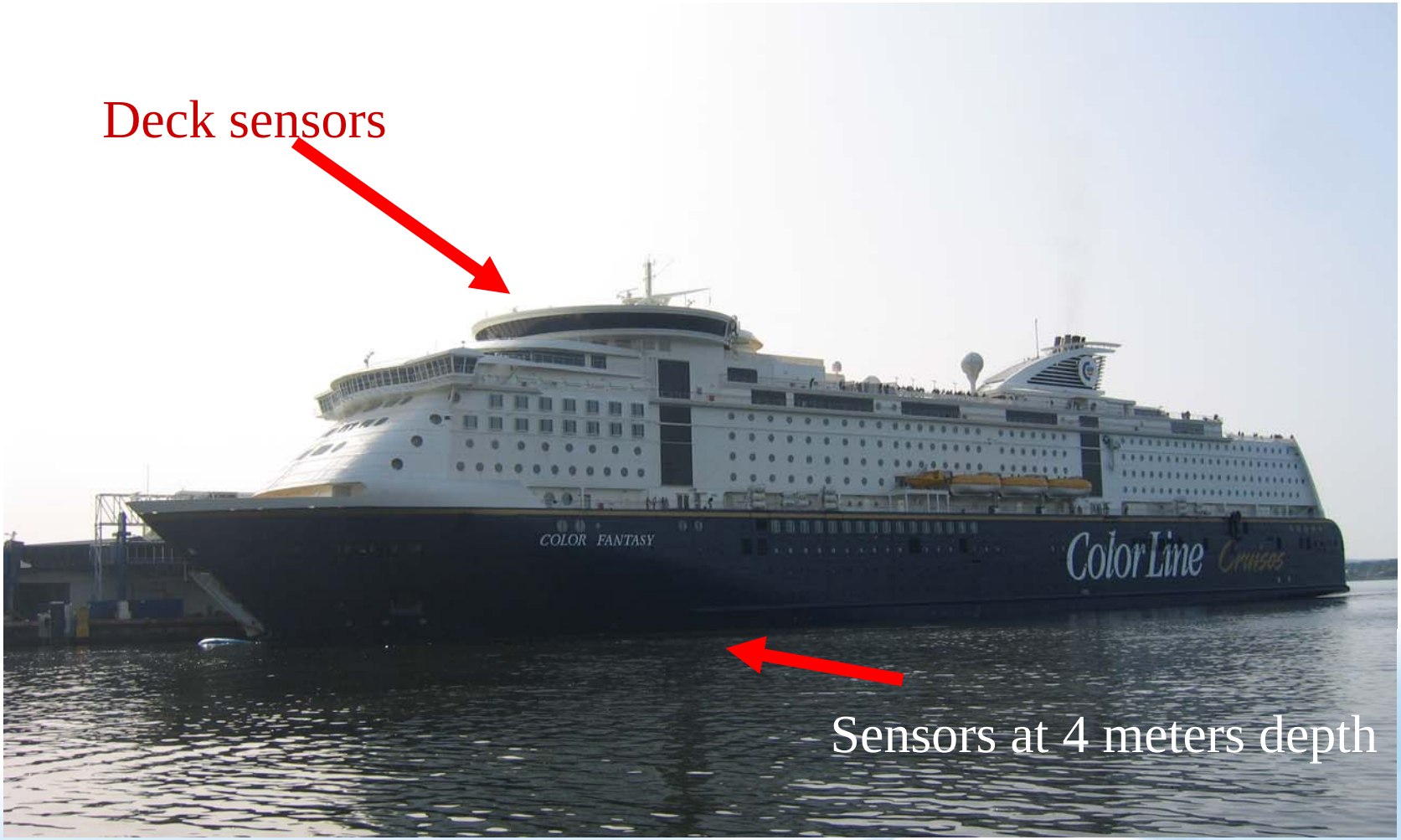
Content

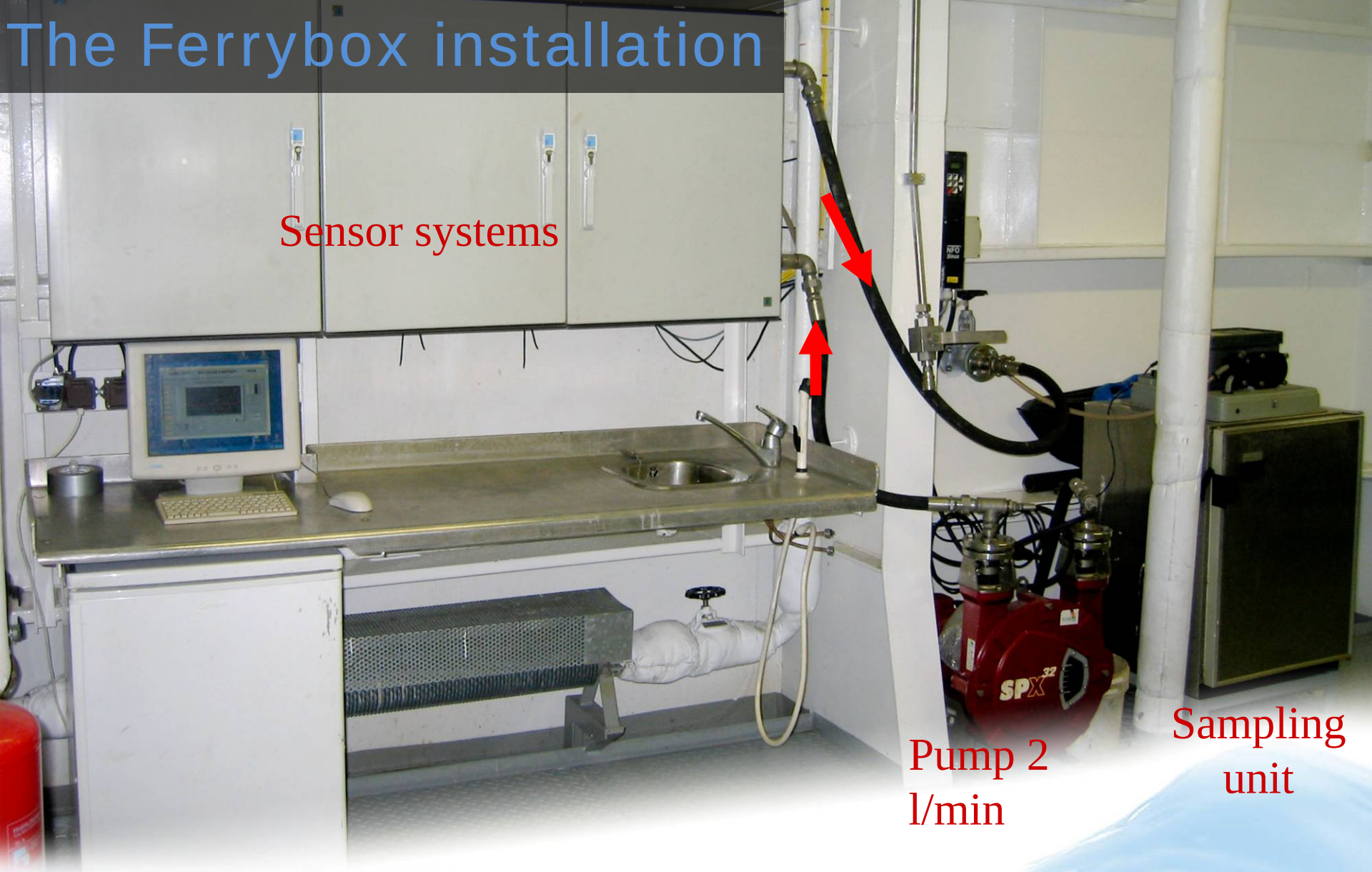
- Ferrybox routes operated by NIVA
- Maintenance
- Calibration and controls
- Data transmission
- New sensors

NIVA Ferrybox routes in Jerico

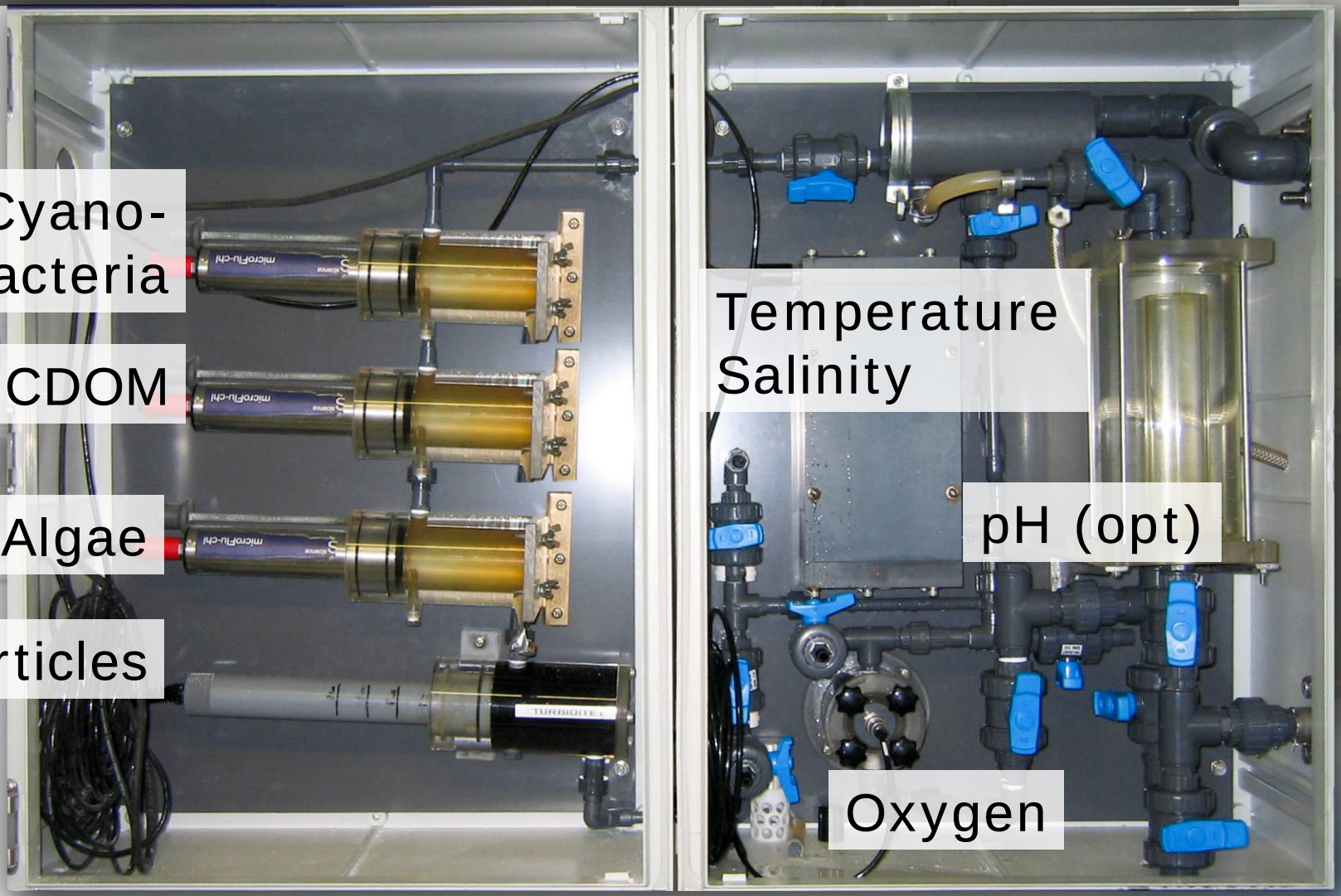
The Ferrybox system on Color Fantasy between Oslo and Kiel



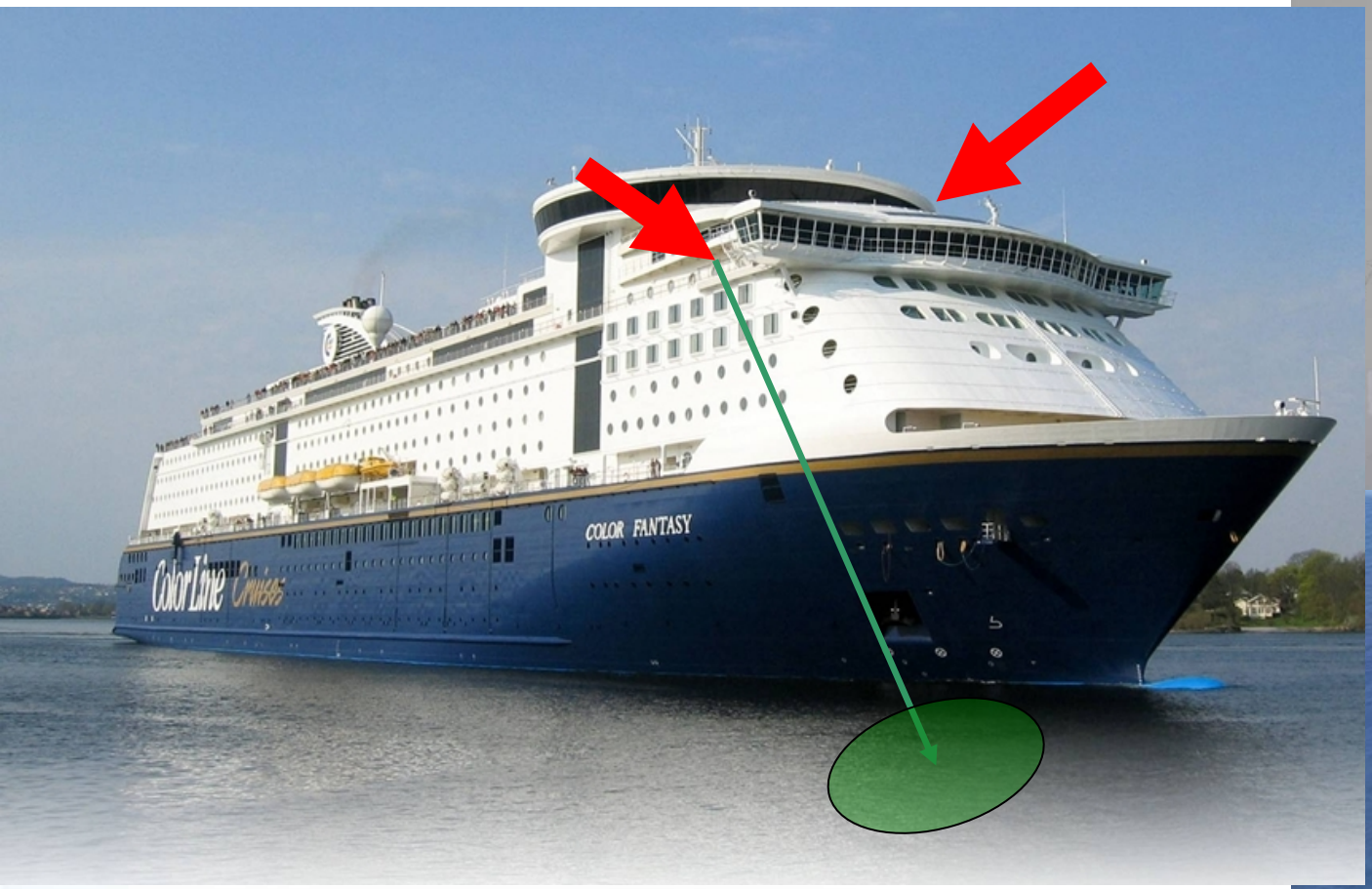
The Ferrybox installation

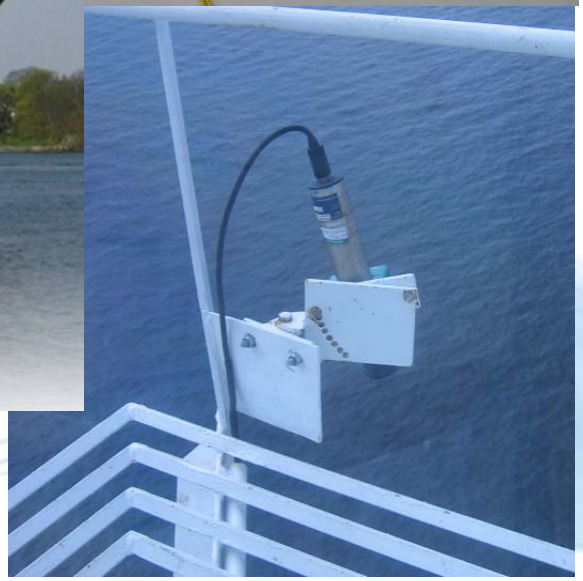


Ferrybox sensors on Oslo-Kiel



Deck-sensors
Downwelling irradiance
Upwelling radiance
Met. observations





Wind sensors and data transmission on Trollfjord

Overview on sensor

Sensor	Type	Color Fantasy (Oslo-Kiel)	Bergensfjord (Hirtshals-Bergen)	MS Trollfjord (Bergen-Kirkenes)	Norbjørn (Tromsø-Svalbard)
water temperature	SBE 45 Micro TSG				
conductivity	SBE 45 Micro TSG				
water temperature Inlet	SBE38				
Oxygen	Optode 4835				
Oksygen inlet	Optode 4836				
chlorophyll-a	microFlu-chl-A				
turbidity	Polymetron				
irradiance (PAR)	Ramses-ACC-VIS	1		1	1
radiance (sky)	Ramses-ARC-VIS	2		2	1
radiance (water)	Ramses-ARC-VIS	2		2	1
cyanobacteria	microFlu-blue				
CDOM	microFlu CDOM				
Oil & PAH	enviroFlu-HC				
water sampler	ISCO (24/14)	24	14	24	24
Air Pressure	Met.no design				
Wind sensors	Gill				

	In operation
	Test ongoing

IMR: Vesterålen,

SBE45,

SBE38,

Chla-Fl Seapoint

Data transmission

- Internally on ship: Between sensor and PC or between deck sensors and PC
  - RS232
  - Modem from deck to PC
  - Analog signal (turbidity)
  - (W)LAN (internal internet)
- Externally to database at NIVA
  - GPRS
  - Internet

Maintenance

- Aircleaning of all optical sensor
  - In harbours (1/day)
- Manual cleaning
  - Biweekly/weekly cleaning of sensors
    - Backflushing with freshwater of inlet valve
  - Min 2-3/year cleaning of inlet/outlet valves
- Irradiance/radiance sensors
  - Cleaning/control 3-4/year

Calibration and control samples

- Salinity/temperature
  - Controll samples minimum 2-4/year
  - Factory calibration when needed
- Oxygen
  - Winkler (in harbour) 4-6/year
- Turbidity
  - Formazin standard 1-2/year
- Chlorophyll-a fluorescence
  - Algaculture and water samples
- Irradiance/radiance sensor
  - FieldCal lamp 3-4/year
  - Yearly control at NIVA - NIST reference/cal. bench

New installation planned

- Marine acidification systems
  - Photometric pH and pCO2

- Organic micropollutants (SPMD)