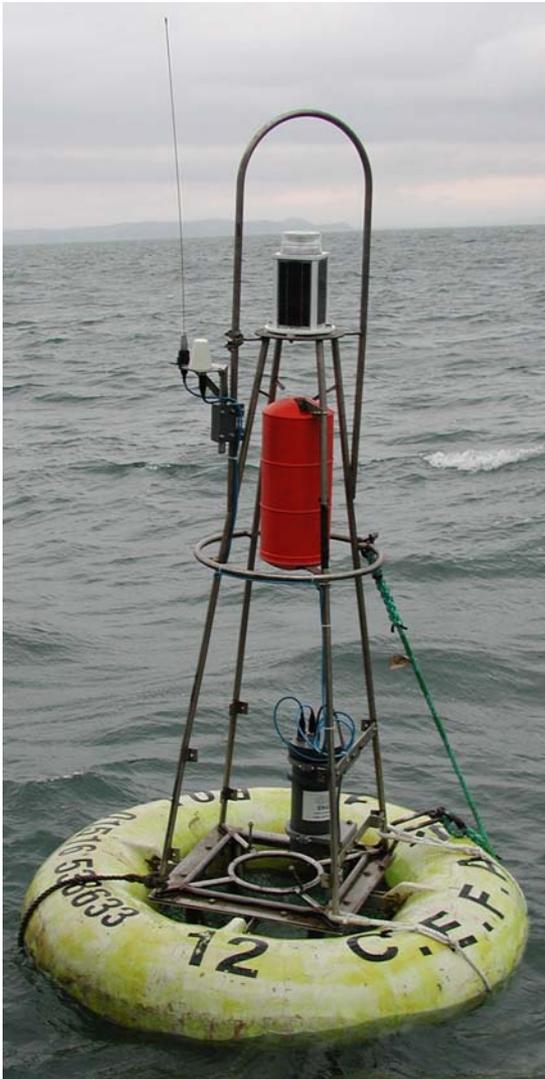


Cefas Marine Observations Systems – an integrated approach to marine monitoring



David Pearce

Background



- National Marine Monitoring Programme (UK Govt)
- Monitoring the shelf seas
- Eutrophication assessment
- Cruises provide spatial data (now satellites?)
- Moorings provide temporal data at high resolution
- Monitor episodic events occurring under extreme sea conditions generally missed by cruises

State-of-the-art technologies



- Invested in and developed SmartBuoy over 10 years
- Track record, rugged, reliable
- Platforms, data loggers, sensors, telemetry
- Software, database, QA
- Website, data dissemination

SmartBuoy Configuration -



Max. weight ca. 500kg

- Fibreglass hull
- 316 Stainless Steel Frame
- Instruments
 - ESM2 logger (CT, OBS, Flu, PAR, DO, etc...)
 - NAS-3X Nutrient Analyser
 - WMS-2 Water sampler
 - ORBCOMM telemetry
 - GPSMML mooring locator
 - Echomax Radar Reflector
 - Navigation Light (5 yellow/20 seconds)
- Mooring – single point below buoy, wire/chain, 900kg sinker

SmartBuoy Database



- SQL 2003
- Server Cluster
- RAID5 disk array
- Regular Backups
- Supports Website
- >10 million fully QA'd data records
- Also holds WaveNet data

SmartBuoy Data Management System – Sensor configuration

SmartBuoy Data Management System

Maintain Records Select Files For Processing Data Visualisation Queries Result QA Options Window Help

Sensor Details (ID 261)

General Declarations Parameters Service History Additional Comments Audit Details

General

Id: 261

Description: Aanderaa Optode - Type 3830

Sensor Type: Aanderaa Optode

Serial Number: 467

Sensor Handling Method: SERIAL INTERFACED SENSOR

Has Gain Control?:

Current Drawn (mA): 80

Service Interval (months): 12

Calibration Interval (months): 12

Deployments Where This Sensor Has Been Used:
TH1/050
TH1/052
TH1/054
TH1/056
TH1/058

Current Record?:

Sensor Details (ID 261)

General Declarations Parameters Service History Additional Comments Audit Details

Code	Descr
O2CONC	Oxygen concentration
O2SAT	Oxygen percent saturation
TEMP	Temperature

Add Parameter ...
Remove Parameter ...
Calibration ...

Sub Channel: 0

Unit: milligrams per litre

Telemetry Sensor Type: 1096 - Aanderaa Optode - parameter 1

Sensor Calibration Type: Serial/offboard sensor with optional scal

QA Status: Minimum level required before data from this sensor / parameter can be published: 4

Calculated?:

ResultRange - from: 0.1 to: 20

Telemetry Data: Max rate of change per hour:

Burst Data: Max rate of change per hour: Preceding point - NP1: Following point - NP2: NP1 + NP2:

Current Record?:

OK Apply Cancel

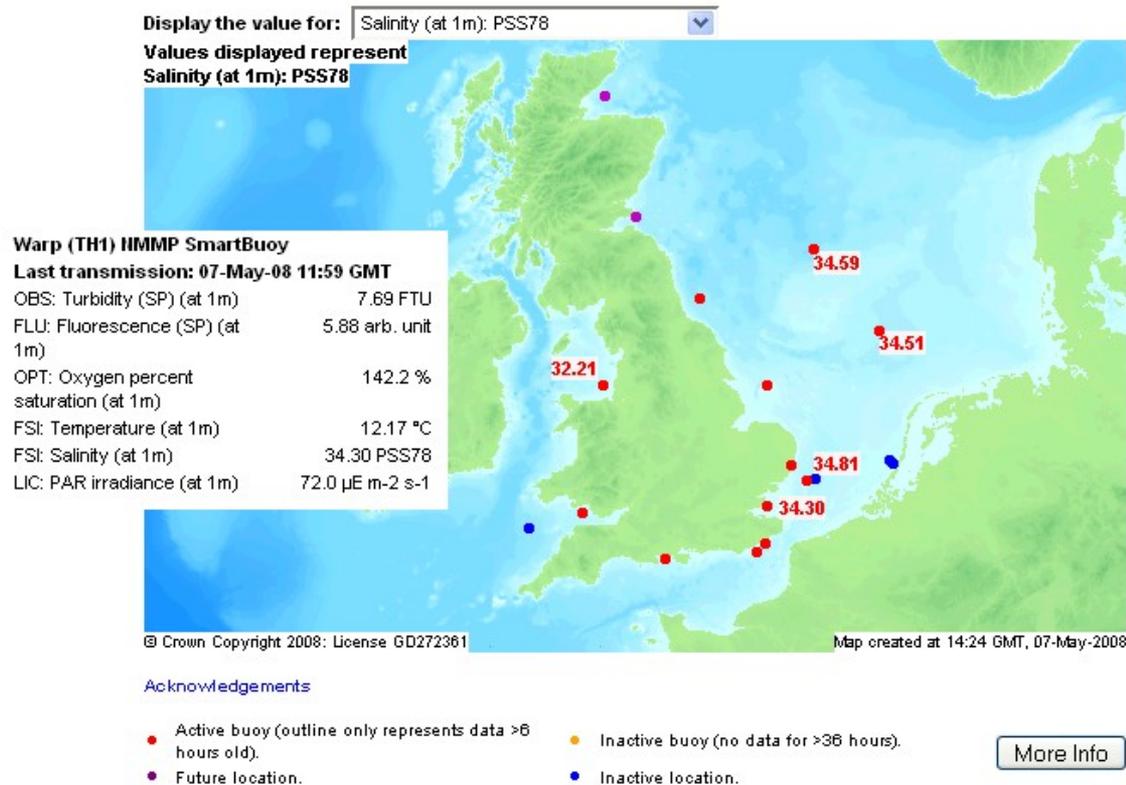
Logger - Log...

SmartBuoy on SmartBuoyDbLive David Pearce PC1873 Wn2000 3.6.2

Marine Monitoring Website (www.cefas.co.uk/monitoring)

Marine monitoring

SmartBuoy Basic Map



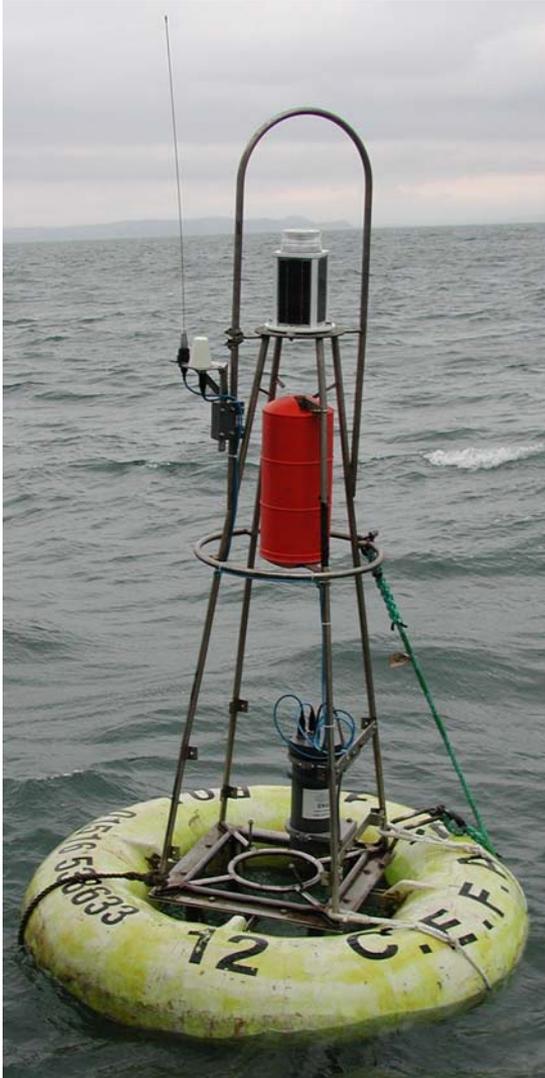
- Near-real time data
- Historic data
- Deployment details
- Background information
- Data archive (free registration)

Ecosystem understanding



- Scientific interpretation
- Assessments
- Model validation
- Calibration of remote sensed satellite images

Conclusions



- Integrated Marine Observations Systems
- Quality assured data
- Underpins science – improved understanding of marine processes
- Environmental Assessments
- Policy Advice to Government
- Data freely available through Marine Monitoring Website