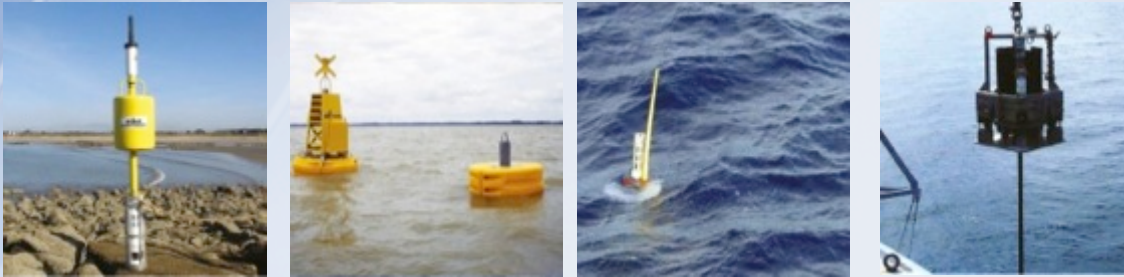


# nke

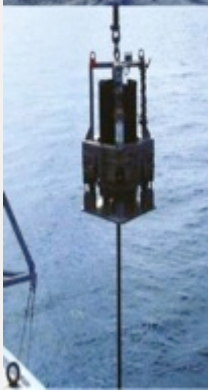
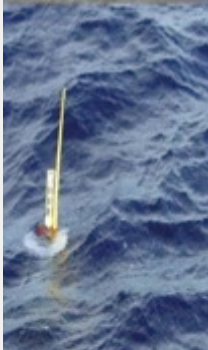
## INSTRUMENTATION

www.nke-instrumentation.com



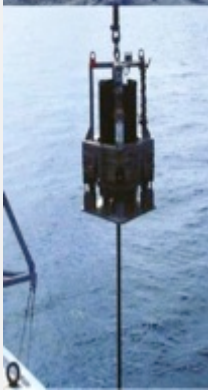
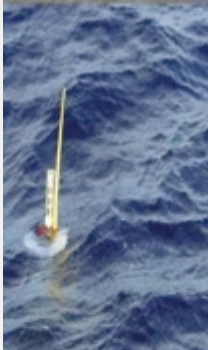
Montreal , may 2014

- ❖ Located in Hennebont, Brittany (130km from Brest)
  - ❖ Created in 1984
  - ❖ Specialized in the study and fabrication of electronic apparatus
  - ❖ 70 employees
- ❖ Turnover: 2011 **7.5 M€** 2012 **8.5M€** 2013 **10,8 M€**



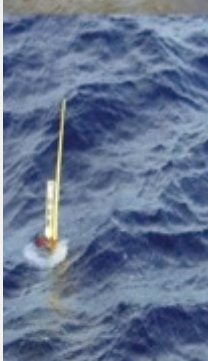
# nke INSTRUMENTATION

- ❖ Designer, manufacturer and seller of **instruments and systems for water measurements and environmental monitoring**
- ❖ **Ocean, deep sea, coastal areas, rivers, lakes**
- ❖ Involved in **national and international research projects**



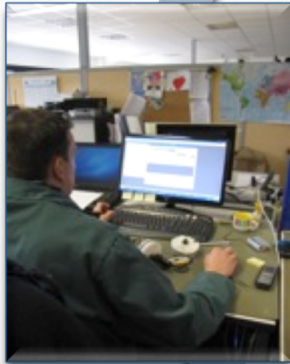
# nke instrumentation

- ❖ **Marketing and Sales department** (5 persons)
- ❖ **Engineering:** electronic, mechanical, and software design (12 persons)
- ❖ **Manufacturing and metrology department** (11 persons)
- ❖ **Support and after sales service** (2 persons)
- ❖ **Administrative services** : provided by nke sa
- ❖ Turnover 2011:**4.2M€** 2012:**5.1M€** 2013:**6.9M€**





**Production**



**Engineering**

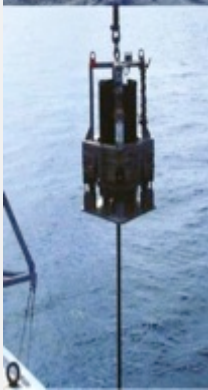
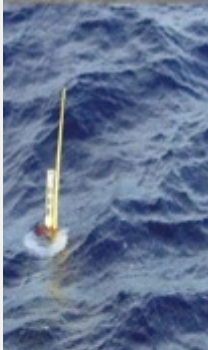


**Metrology**



**Services**

**nke**  
INSTRUMENTATION



# Range of Products



## Multiparameter probes

Autonomous multiparameter probes with radio or inductive communication



## Automated networks

Autonomous measurement networks for water and environmental monitoring

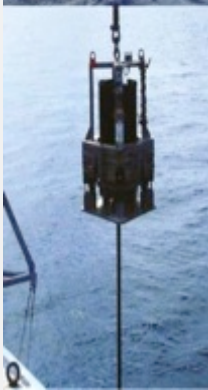
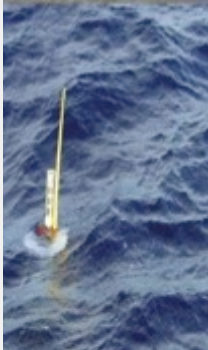


## Floats and drifters



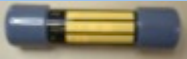
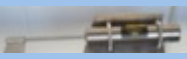








## Deep sea

Instrumented systems designed to monitor the environment or perform measurements in sediments





# Multi-parameter probes

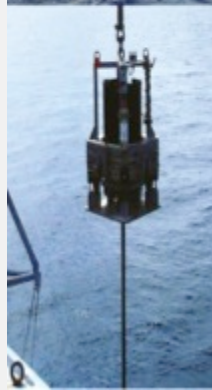
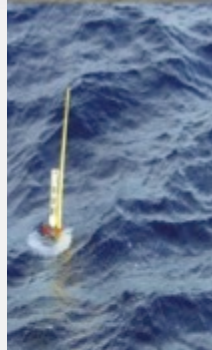
	T	D	C	DO	Tbd	pH	Fluo	Irr
S2T 	X							
THP 	X							
CTH 	X		*Thermal C					
SP2T 	X	X						
SPTH 	X	X						
STPS 	X	X	X					
STBD 	X	X			X			
SDOT 	X			X				
MPx 	X	X	X	X	X	X	X	
SPAR 								X
S-CHLORINATOR	<i>Bio-fouling protection</i>							



# Inductive or radio communication



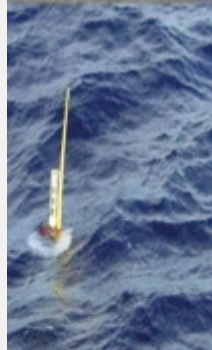
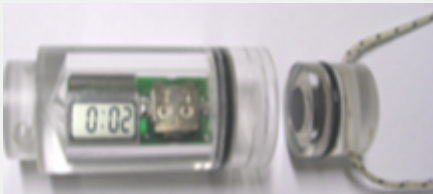
Communication Interface  
Data pencil  
Software Winmemo II



# Fishing products



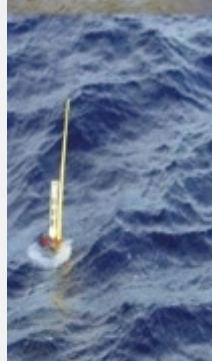
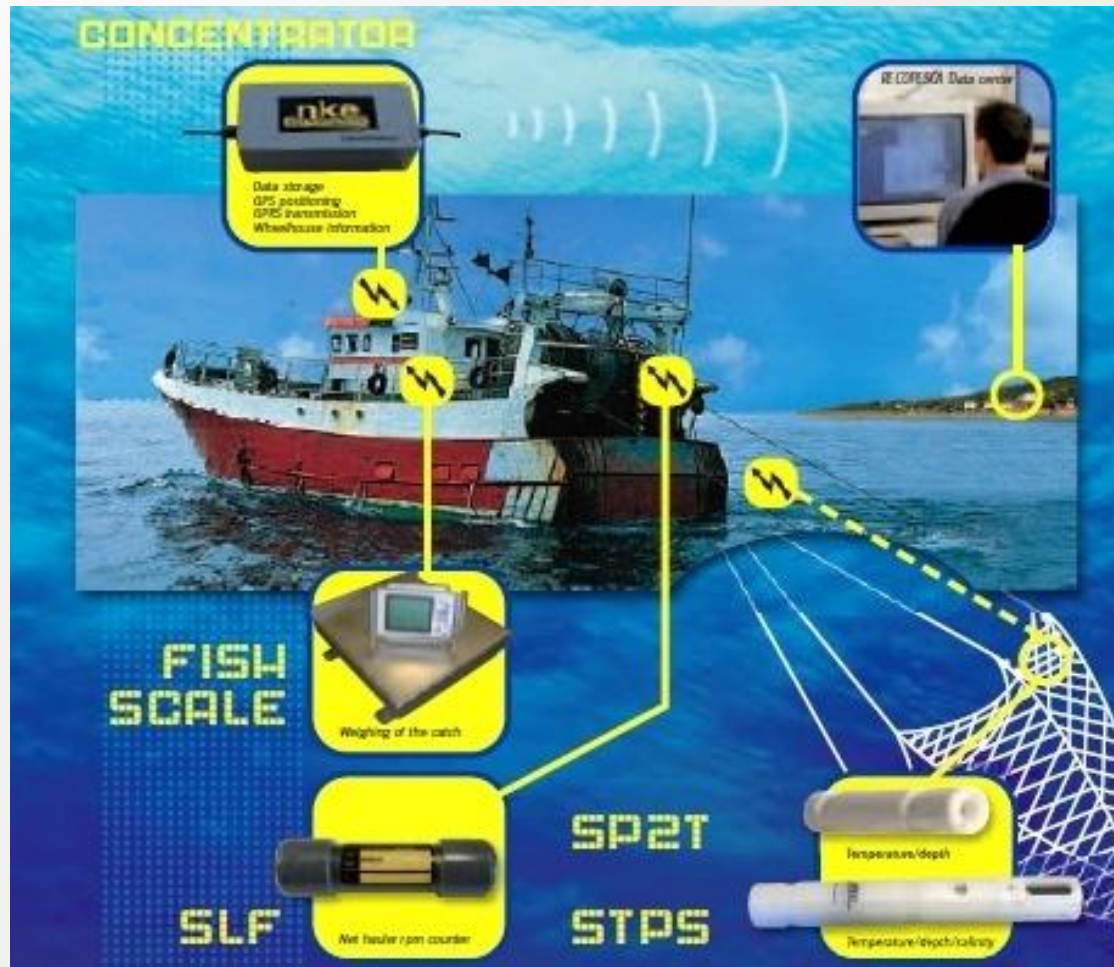
**Reco Scale** - Fishing Scale  
**SLF** – length of paid-out net  
**SF** – Force  
**Hook Timer** – fishes behaviour  
**SP2T** – Temperature and Depth





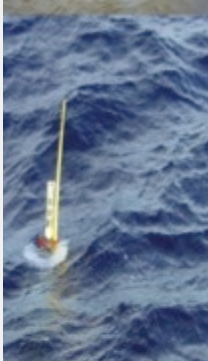
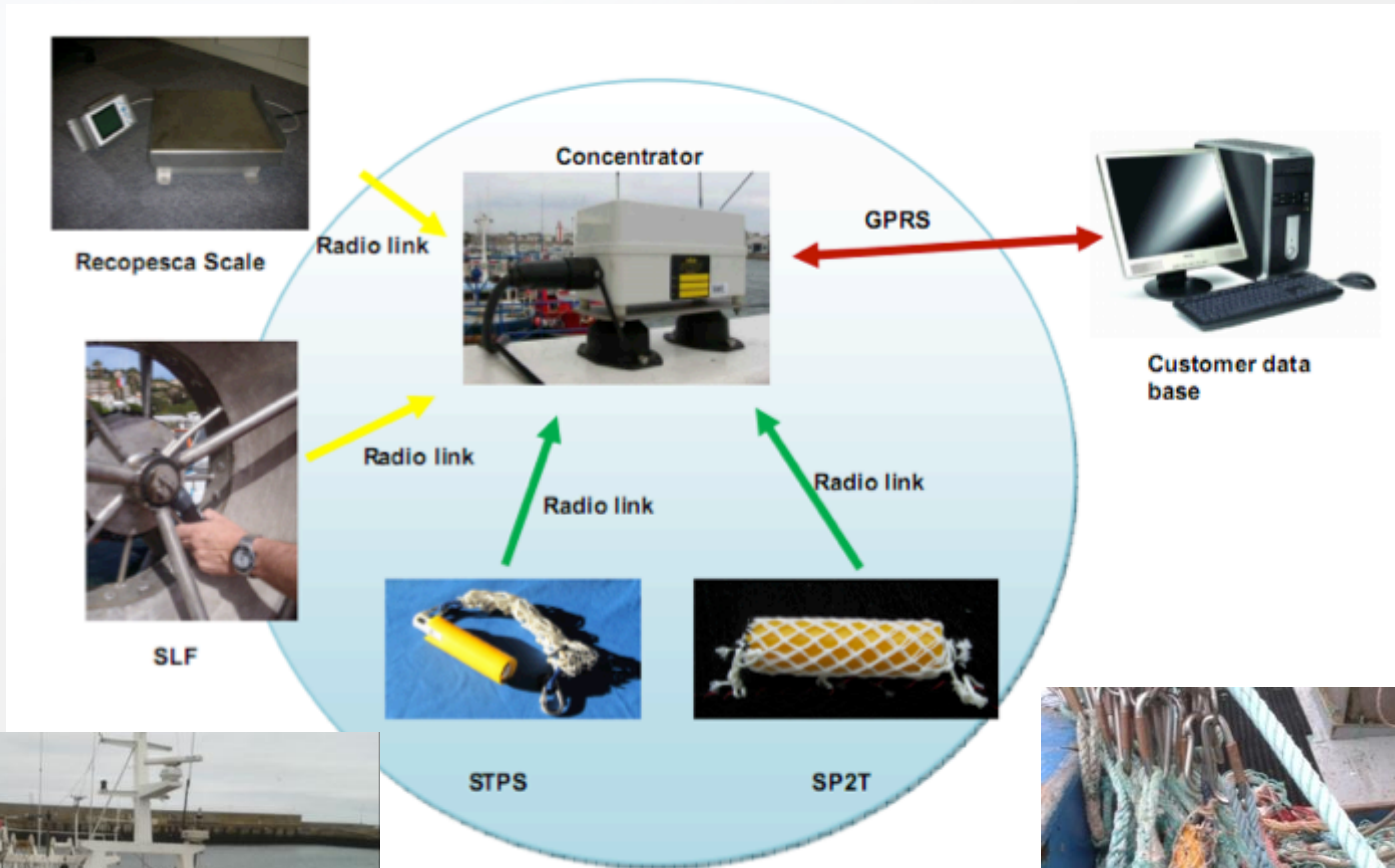
# RECOPESCA Network (since 2005)

Network of sensors for the measurement of the fishing effort and environmental parameters , by Ifremer





# RECOPESCA : main products



# Some installations :

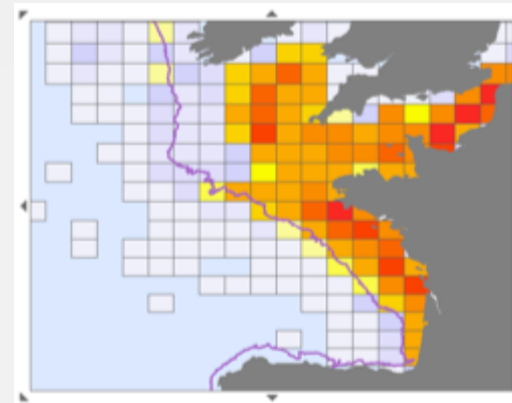
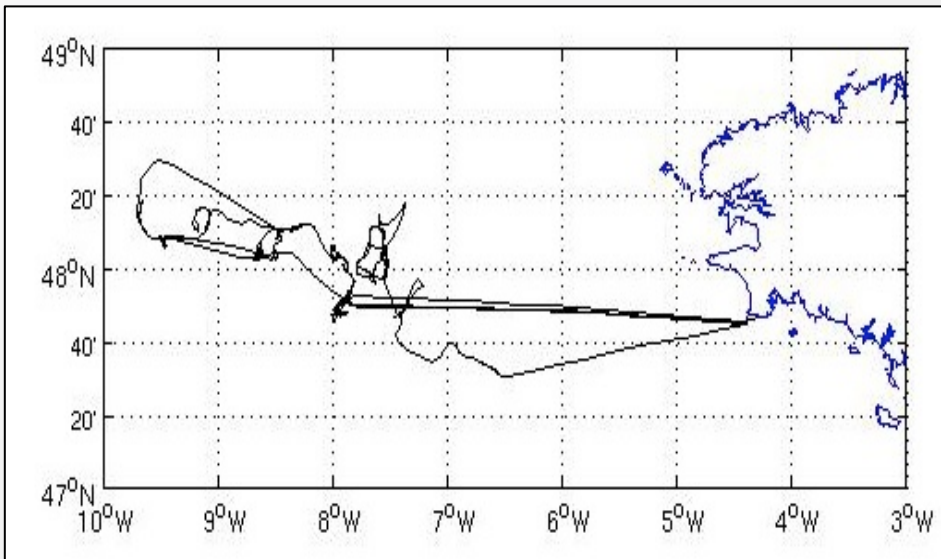


# Recopesca in 2014

**France :** 8 years of experience, > 100 fishing vessels  
(Ifremer, protected natural areas, fishing ministry)

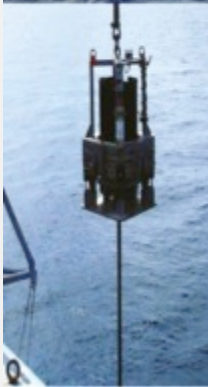
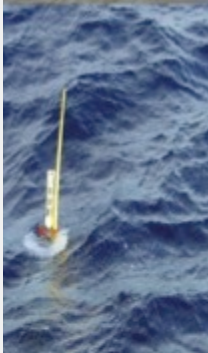
**Fishing effort :** Concentrator + SP2T or SLF + Scale

**Environmental :** Concentrator + STPS + Turbidity



Ifremer data analysis

**Europe :** > 30 ships, Italy (20) and Ireland (10)



# Physical environmental data (Ifremer)

- The needs :
  - Better description and simulation of the circulation over the shelf and the slope in the Bay of Biscay and the Channel
  - For operational oceanography :
    - Validation of hindcast and nowcast
    - In the (near) future, assimilation of in situ data



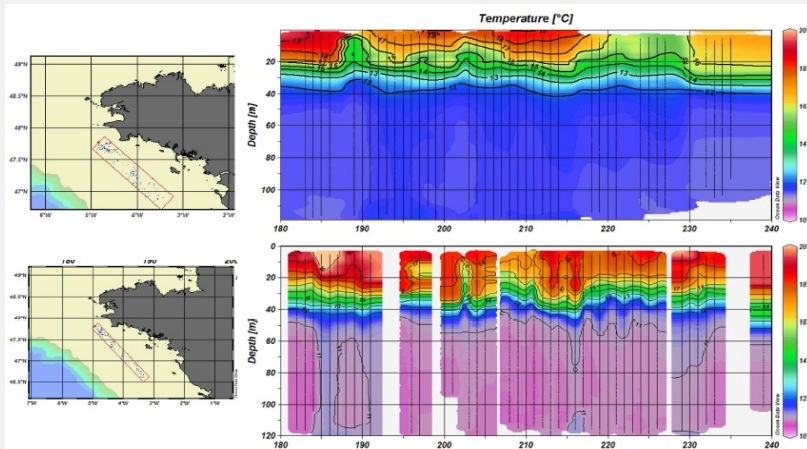
*Operational observing networks in late 2009.*

- Few available data
- Advantages of Recopesca hydrological network :
  - High number of CTD casts, all through the year vs oceanographic survey.
  - Monitoring of the whole water column (not only the surface) vs remote sensing or ferry box.
  - Temperature and salinity (turbidity )

A description of the whole water column, from the surface to the bottom

# Physical environmental data (Ifremer)

- In 2008-2009 (pilot phase) :
  - over 8000 profiles of temperature and/or salinity recorded in the Atlantic Ocean by around 15 vessels
- Expected contribution of Recopesca to the observing networks
  - Current activity of Coriolis : ~ 350.000 stations (profiles) per year
  - Recopesca : 200.000 further stations with 400 vessels ?



Evolution of temperature during summer 2008 (top) and summer 2009 (bottom)

First analysis over the shelf in Bay of Biscay :  
[http://www.previm.org/en/newsletter/bulletin\\_d\\_informations\\_de\\_previmer](http://www.previm.org/en/newsletter/bulletin_d_informations_de_previmer)

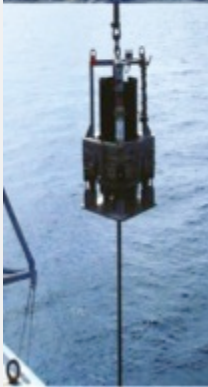
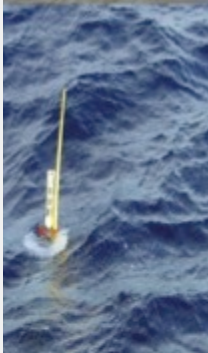
# Main difficulties solved in Recopesca :

**Technology** : reliability (housing improvement of Concentrator, new depth sensor to increase long term stability, modification of loggers' protection ...),  
metrological checking (every 12 or 6 months for conductivity ),  
radio transmission improvement (new antenna),  
GPRS for international application (Roaming),  
rpm counter (adaptation to different net hauler types)

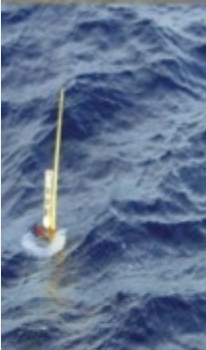
**Network of partner in harbour** : needed reliable private companies, for efficient installations (operationnal network)

**Feedback to fishermen**: after data analysis by Ifremer, information is sended to owner of fishing ship, else voluntaries ship are difficult to find (program delayed in 2010)

**New sensors** : turbidity (sediments transportation study),  
Dissolved Oxygen (on test), Fluorescence sensor (development in European project Nexos), low cost beacon (GPS-GPRS only)

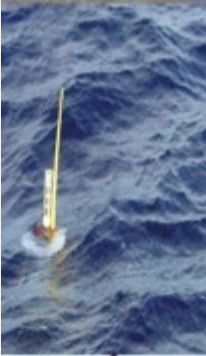


# New STPS protection



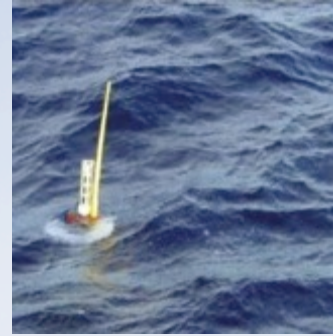


# NEW : low cost GPS-GPRS beacon



Tracking beacon for fishing ships positioning

# Thank you for your attention!



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