



Final Workshop
Instituto Superior Técnico, Lisboa, Portugal
1st June 2023

**WP4 - Enhanced *in situ*
monitoring for MSFD**

**iFADO *in situ* monitoring
and interregional
cooperation**



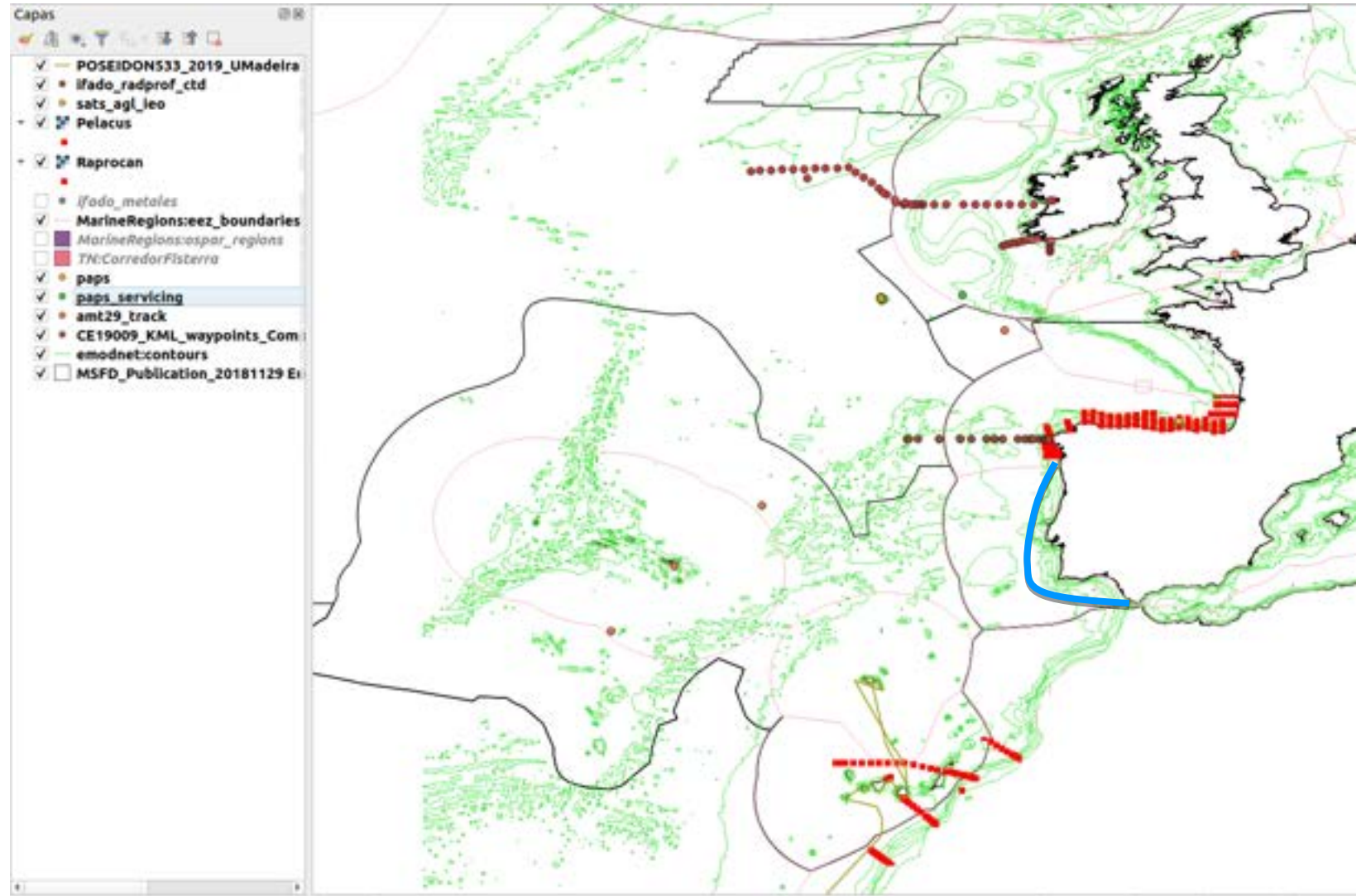
This project has received funding from the European Union's Interreg Atlantic Area programme under the grant EAPA_165/2016

MSFD region =
North-East Atlantic Ocean

Subregions:

- Celtic Seas
- Bay of Biscay
- Iberian Coast
- Macaronesia

D4.4.1 Periodic reports on
on-going monitoring
programmes relevant for
MSFD data



iFADO monitoring cruises

Cruise code	Cruise/ Project	Acronym	Starting date	Ending date	Institution	Country	iFADO partners participating	International NON-iFADO participants	Research Vessel	Chief Scientists
1	Ocean Climate Survey CE18001	OCS CE18001	10/02/2018	18/02/2018	MI	Ireland	1 (MI)	1	RV Celtic Explorer	Caroline Cusack
2	Microplastics Transit Cruise	64FE442	26/07/2018	08/08/2018	FRCT / UAzores	The Netherlands	1 (UAz)	5	RV Pelagia	Linda Amaral Zettler
3	RADPROF - Radiales Profundas 2018	Radprof1 808	18/08/18	29/08/18	IEO-CSIC	Spain	1 (IEO)	1	B/O Ramón Margalef	César González-Pola
4	BIODIAZ - Controls in benthic and pelagic biodiversity of the Azores	M150 BIODIAZ	27/08/2018	02/10/2018	WMW / UZK	Germany	2 (UAz, UMa)	10	RV METEOR	Kai Horst George Hartmut Arndt Achim Wehrmann
5	Atlantic Meridional Transect 28	AMT 28	23/09/2018	29/10/2018	PML	UK	3 (PML, ULis, NOC)	9	RRS Discovery	Glen Tarran
6	AIMAC - Atmosphere-ocean-island-biogeochemical interactions in the Macaronesian Archipelagos	PO5533	28/02/2019	22/03/2019	GEOMAR	Germany	1 (UMa)	8	RV Poseidon	Birgit Quack Rui Caldeira
7	Ocean Climate Survey CE19	OCS CE19			MI	Ireland	1 (MI)	?	RV Celtic Explorer	Caroline Cusack
8	RRS Discovery cruise 103	DY103	21/06/2019	10/07/2019	NOC	UK	1 (NOC)	2	RRS Discovery	Susan E. Hartman
9	Radiales Profundas 2019	Radprof1 908	18/08/2019	29/08/2019	IEO-CSIC	Spain	1 (IEO)	-	B/O Ramón Margalef	César González-Pola
10	Atlantic Meridional Transect 29	AMT 29	13/10/2019	25/11/2019	PML	UK	3 (PML, ULis, NOC)	11	RRS Discovery	Giorgio Dall'Olmo
11	IFADO - RADPROF - Radiales Profundas 2020	IFADO-Radprof2 007	08/07/2020	24/07/2020	IEO-CSIC	Spain	3 (IEO, ULis, PML)	-	B/O Sarmiento de Gamboa	Manuel Ruiz Villarreal
12	RRS Discovery Cruise 116	DY116	10/11/2020	27/11/2020	NOC	UK	1 (NOC)	-	RRS Discovery	Andrew R. Gates

iFADO monitoring cruises

Cruise code	Cruise/ Project	Acronym	Starting date	Ending date	Institution	Country	iFADO partners participating	International NON-iFADO participants	Research Vessel	Chief Scientists
13	Ocean Climate Survey CE21003	OCS CE21003	05/03/2021	18/03/2021	MI	Ireland	1 (MI)	2	RV Celtic Explorer	Caroline Gusack
14	RRS Discovery cruise 130	DY130	24/03/2021	14/04/2021	NOC	UK	1 (NOC)	-	RRS Discovery	Susan E. Hartman
15	Radiales Profundas 2021	Radprof2 108	14/08/2021	25/08/2021	IEO-CSIC	Spain	1 (IEO)	-	B/O Ramón Margalef	Marta Álvarez
16	Project TRAFFIC- Trophic transfer efficiency in the Benguela Current	SO285	20/08/2021	02/11/2021	ZMT	Germany	1 (UMa)	9	RV SONNE	Manfred Kaufmann
17		Pelago22	10/03/2022	30/03/2022	IPMA	Portugal	1 (IPMA)	?	B/O Vizconde de Eza	Ana Moreno
18	CEAM-FEMP	Pelagus03 22	01/04/2022	30/04/2022	IEO-CSIC	Spain	1 (IEO)	-	B/O Vizconde de Eza	Pablo Carrera
19	Ocean Climate Survey CE22008	OCS CE22008	24/04/2022	07/05/2022	MI	Ireland			RV Celtic Explorer	Caroline Gusack
20	RRS James Cook Cruise 231	JC231	01/05/2022	19/05/2022	NOC	UK	1 (NOC)	3	RRS James Cook	Susan E. Hartman
21	Radiales Profundas 2022	Radprof2 206			IEO-CSIC	Spain	1 (IEO)	-	B/O Ramón Margalef	Marta Álvarez
22	Ocean Climate Survey CE21003	OCS CE21003	04/01/2023	17/01/2023	MI	Ireland			RV Celtic Explorer	Caroline Gusack
23	iFADO Sampling site off Funchal	off Funchal	2018	2020	UMa	Portugal	1 (UMa)	-	Ship/boat	Manfred Kaufmann
24	iFADO Sampling site off Caniçal	off Caniçal	2020	2020	UMa	Portugal	1 (UMa)	-	Ship/boat	Manfred Kaufmann
						Total	8	60		

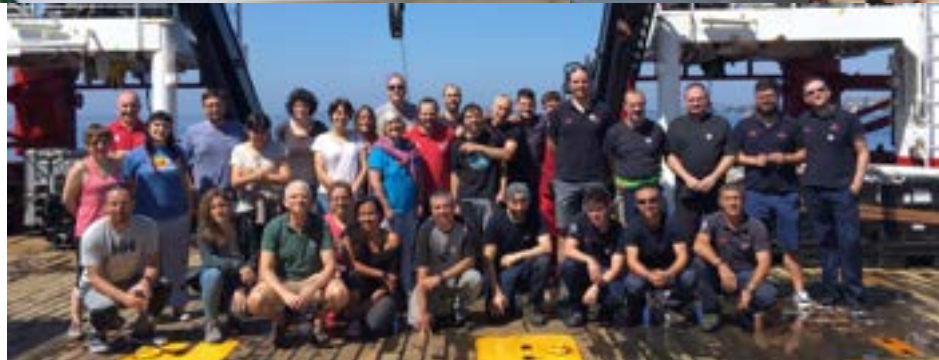
International participation in cruises

More than 60 international research institutions

AMT28	University of Southampton	UK
	British Antarctic Survey	UK
	UCSD - Scripps Institution of Oceanography	EEUU
	British Oceanographic Data Centre	UK
	University of East Anglia	UK
	University of Concepción	Chile
	Université de Bretagne Occidentale (UBO)	France
	University of California	EEUU
	Ocean Engineering Group, National Marine Facilities (NOF)	UK

CRUISE	INTERNATIONAL PARTICIPANTS	COUNTRY
OCS CE18001	National University of Ireland	Ireland
64PE 442	NIOZMMB	The Netherlands
	University of Utrecht	The Netherlands
	Northeastern University	USA
	Finnish Meteorological Institute	Finland
	Stazione Zoologica Anton Dohrn	Italy
RADPROF 2018	University of Vienna	Austria
BIO DIAZ	German Centre for Marine Biodiversity Research, Senckenberg am Meer	Germany
	Institute of Zoology, University of Cologne	Germany
	Centro de Investigação em Biodiversidade e Recursos Genéticos, InBIO Laboratório Associado, University of Porto	Portugal
	Oberösterreichisches Landesmuseum	Austria
	Department of Biology, University of Bergen	Norway
	Departamento de Oceanografia e Pescas, Instituto do Mar (IMAR)	Portugal
	Regional Agency for the Development of Research, Technology and Innovation- Oceanic Observatory of Madeira	Portugal
	Interdisciplinary Centre of Marine and Environmental Research	Portugal
	Universität zu Köln (UZK)	Germany
	Deutscher Wetterdienst	Germany

Some cruise prictures



iFADO measurements

Sharing SOPs, experience and monitoring equipment

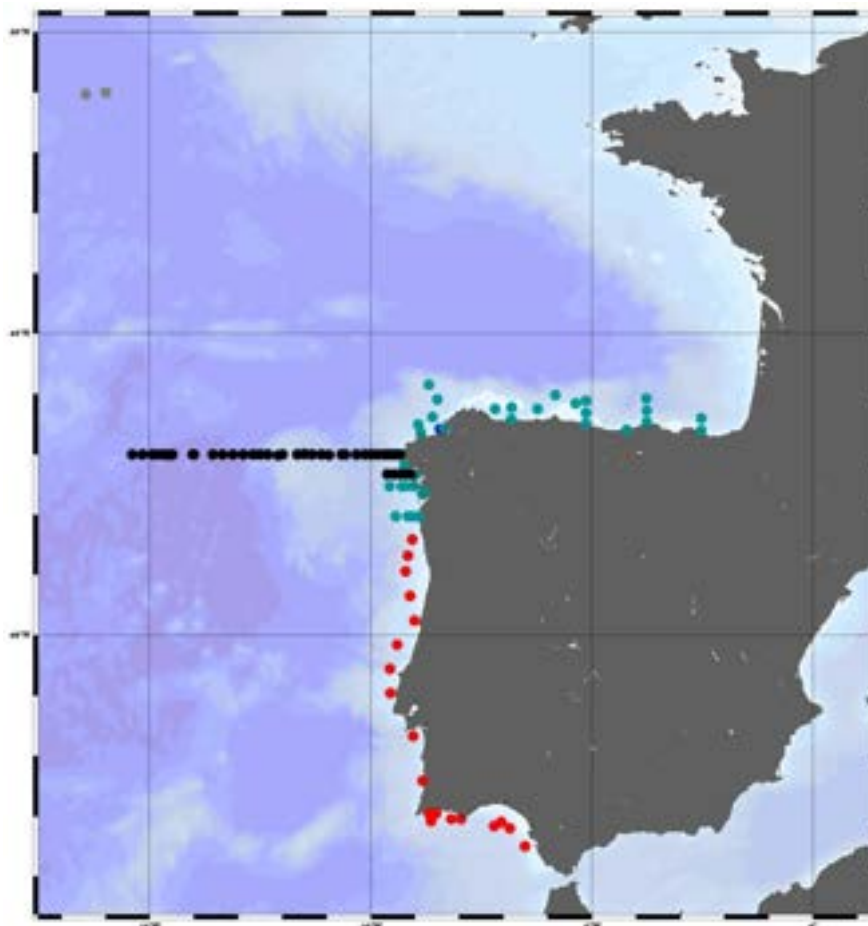
Collection of **HPLC samples** targeting a common MSFD objective => **transnational cooperation**

SOP3: Phytoplankton pigments

Sampling:

- Pelagos22 cruise →  IPMA
Instituto Português
do Mar e da Atmosfera
 - Pelacus0422 cruise
 - Radiales EC02
(sampling site) →  CSIC
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS
 - iFADO- Radprof
2020 + 2021 +
2022
 - PAP-SO 2022 cruise →  National
Oceanography
Centre
- Spain, Portugal, UK

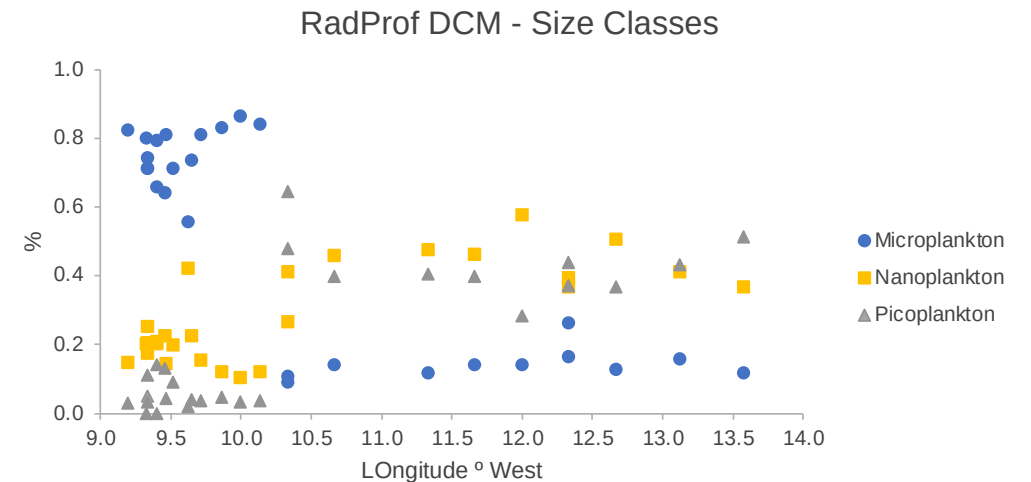
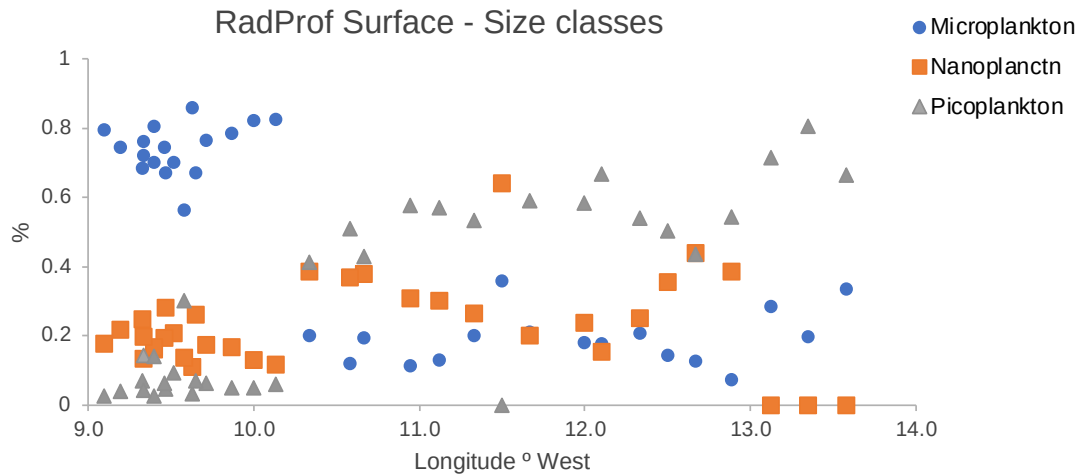
HPLC analysis:  LISBOA | UNIVERSIDADE
DE LISBOA



On-
going
PAPER

Sharing SOPs, experience and monitoring equipment

Collection of **HPLC samples** targeting a common MSFD objective => **transnational cooperation**

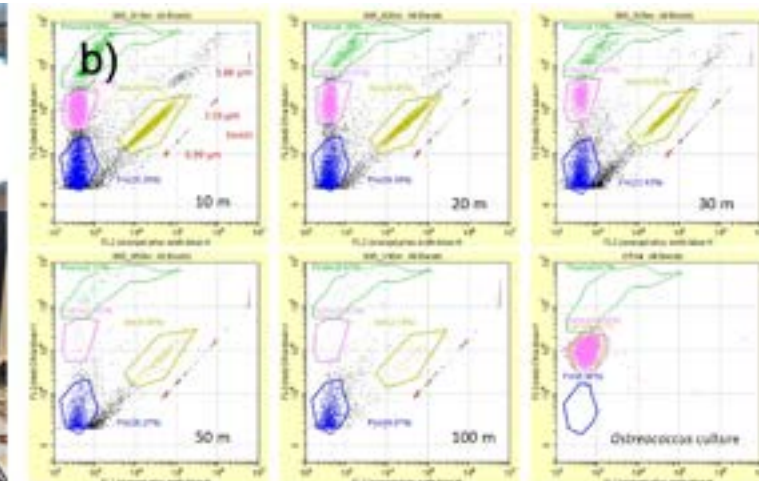
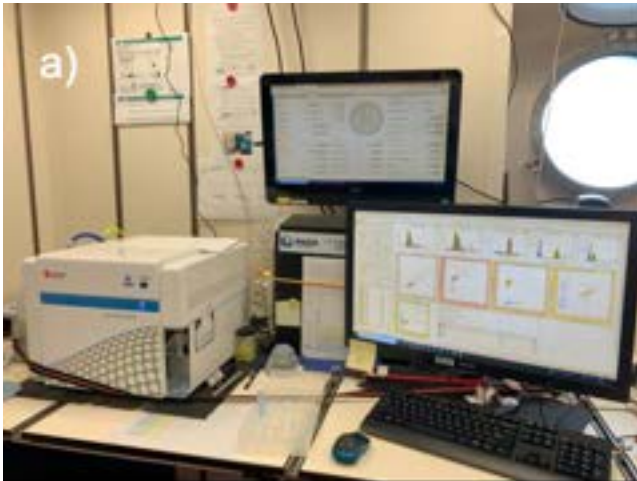


On-
going
PAPER

Brotas et al. (2021) => Phytoplankton size structure

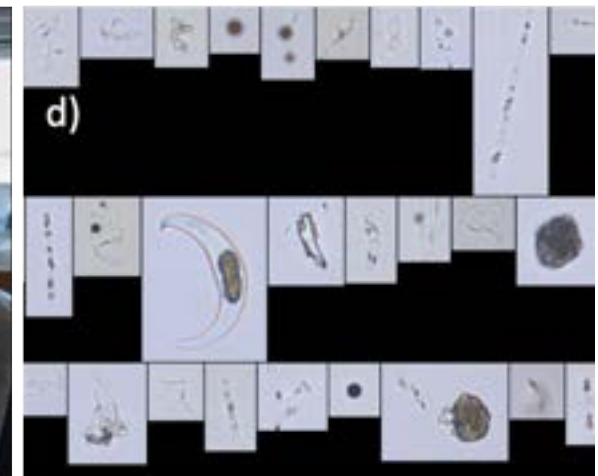
Sharing SOPs, experience and monitoring equipment

Collection of **HPLC samples** targeting a common MSFD objective => **transnational cooperation**



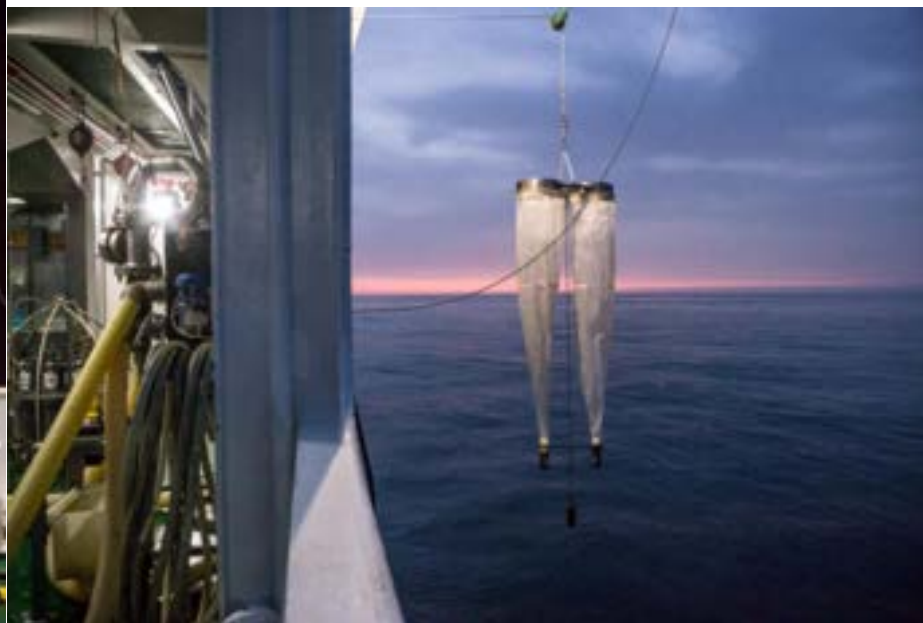
Flow cytometry =>
picophytoplankton (<2 μm)

FlowCAM® + Ecotaxa =>
microphytoplankton (> 20 μm)



On-
going
PAPER

Sharing SOPs, experience and monitoring equipment



SUNA-nitrate sensor

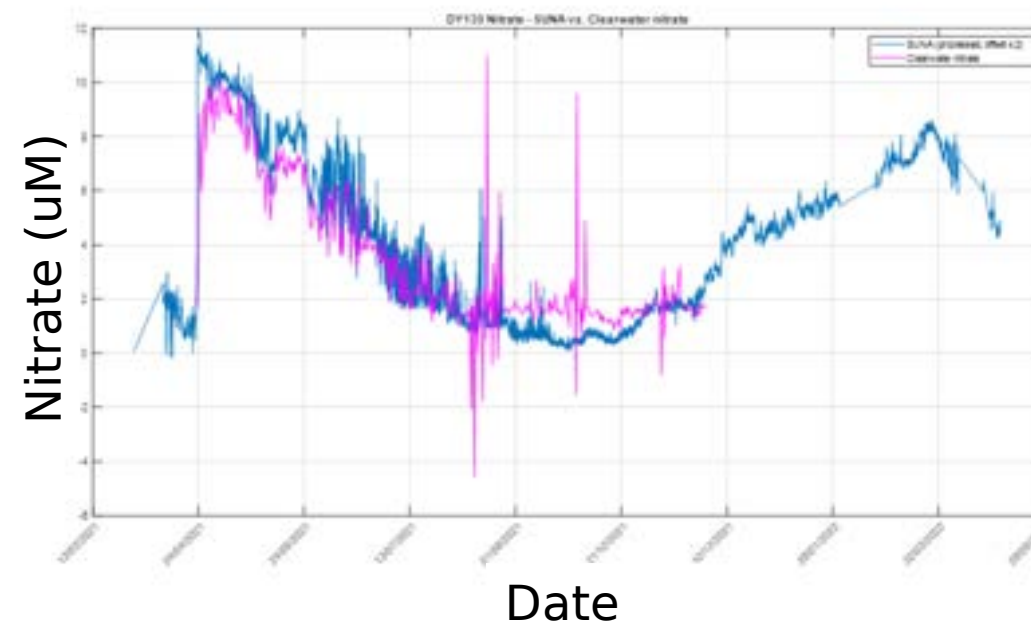


Satlantic SUNA SN 745 nitrate sensor (plastic housing, wrapped in copper tape) with integrated wiper deployed on the sensor frame

DY130 cruise

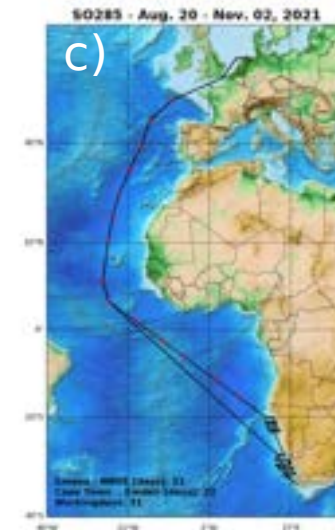
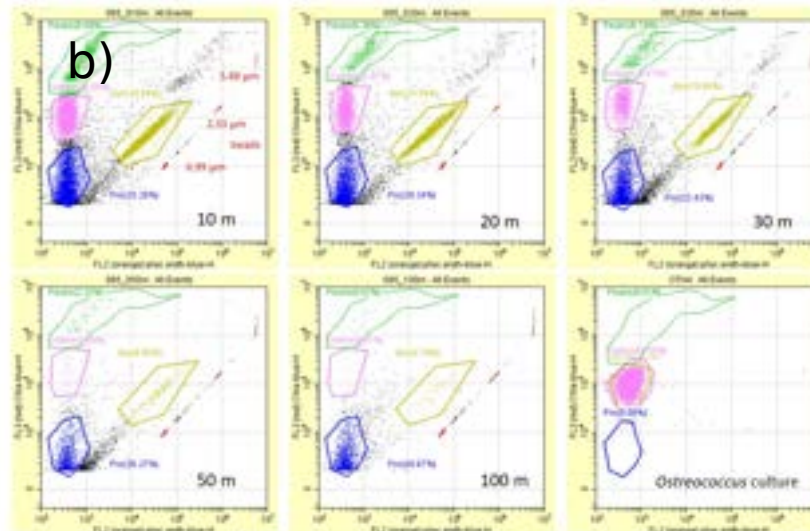
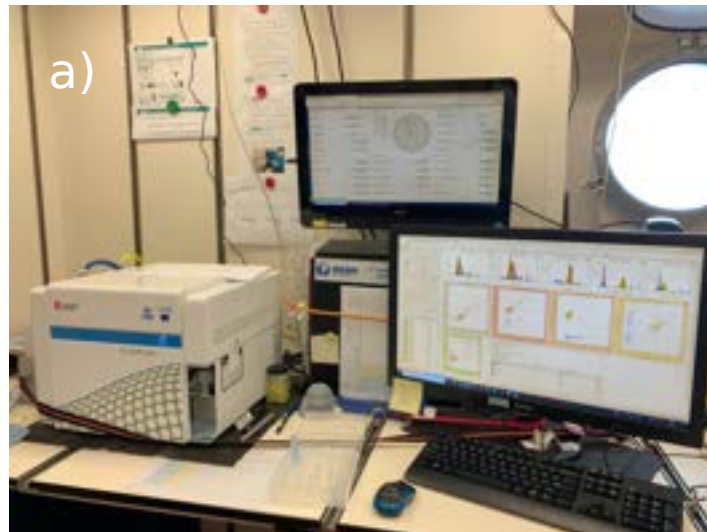


**National
Oceanography
Centre**



Innovative data collection

Onboard flow cytometry





THANK YOU OBRIGADO GRACIAS



This project has received funding from the European Union's Interreg Atlantic Area programme under the grant EAPA_165/2016