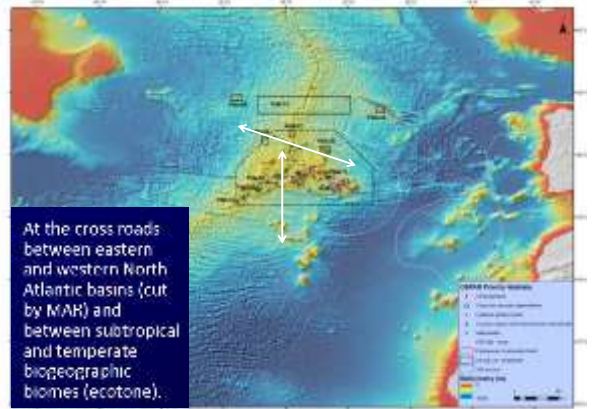# Azores Case Study
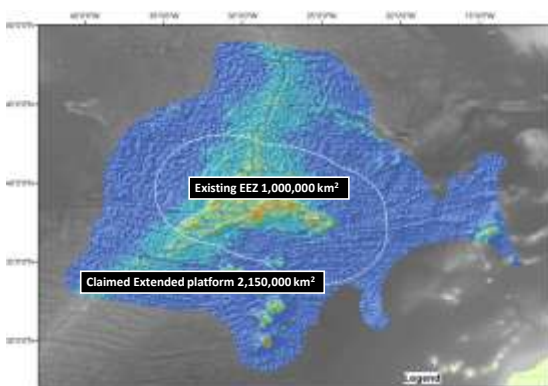
Marina Carreiro-Silva and Telmo Morato - IMAR-Uazores
Covadonga Orejas - IEO

ATLAS Kick-off Meeting
Edinburg, 13-15 June 2016

At the cross roads between eastern and western North Atlantic basins (cut by MAR) and between subtropical and temperate biogeographic biomes (ecotone).

Credits: Ricardo Medeiros, DOP

Existing EEZ 1,000,000 km²

Claimed Extended platform 2,150,000 km²

Credits: Telmo Morato, IMAR

Azores - Oceanography

Currents system in the North Atlantic

C. Gronelândia
C. Labrador
C. Atlântico Norte
AZORES
C. Golfo
C. Açores
C. Florida
C. "Loop"
C. Canárias
Vórtice Subtropical (Anticiclónico)
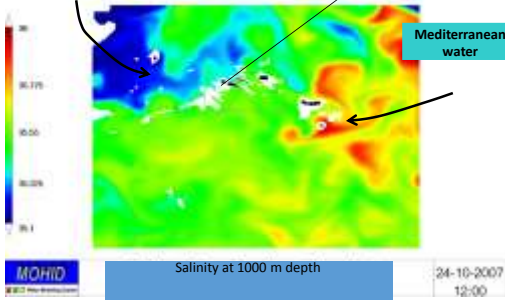C. Caraíbas
C. Equatorial Norte

Credits: Manuela Juliano, UAzores

Azores - Oceanography

North Atlantic Deep Water

MAR as a barrier to the passage of the Mediterranean water to the West of the Azores
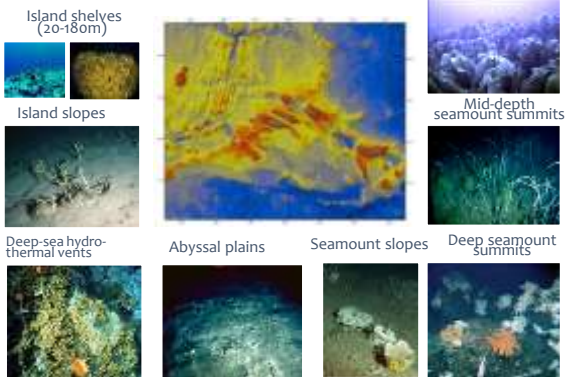
Mediterranean water

Salinity at 1000 m depth

24-10-2007 12:00

Azores - Oceanography

Azores Deep-Sea Environments

Island shelves (20-180m)

Island slopes

Deep-sea hydro-thermal vents

Abyssal plains

Seamount slopes

Shallow seamount summits (45-130m)

Mid-depth seamount summits

Deep seamount summits

Credits: Fernando Tempera

Deep-sea – Cold-water corals as prominent habitats

Island shelves & Island slopes

Seamount summits & Seamount slopes (deep and shallow)

Abyssal Plain

Hydrothermal vents

Deep-sea – Cold-water corals as prominent habitats

Tempera, F, Atchoi E, Amorim P, Gomes-Pereira J, Gonçalves J (2013). Atlantic Area Marine Habitats. Adding new Macaronesian habitat types from the Azores to the EUNIS Habitat Classification. Technical Report No. 4/2013 - MeshAtlantic, IMAR/DOP-UAç, Horta, 126pp.

CWC richness and distribution
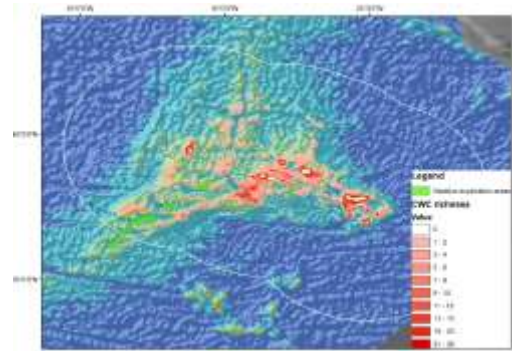
Credits: Telmo Morato, IMAR

Conservation - Marine Protected Areas
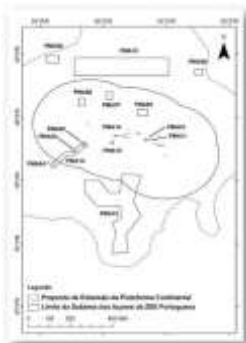
Credits: Gilberto Carreira, DRAM   Part of OSPAR network Marine Protected Areas

Conservation - Marine Protected Areas

Condor Seamount:
The seamount has been recently declared a Marine Protected Area and has been used an a scientific observatory since 2010, allowing the safe deployment of scientific equipment within the scope of **WP2**
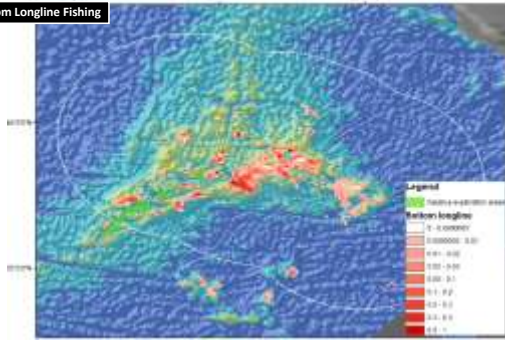
Coral garden composed by the octocorals *Dentomuricea meteor* and *Viminella flagellum*
 Depth: 195-210 m

DeepSeaLab aquaria facilities at IMAR for the maintenance and experimentation with deep-sea organisms
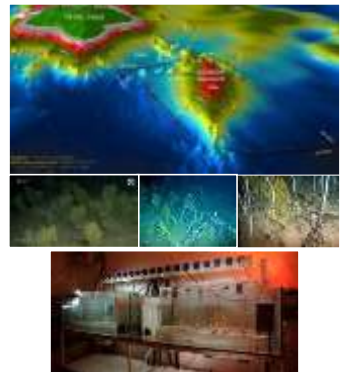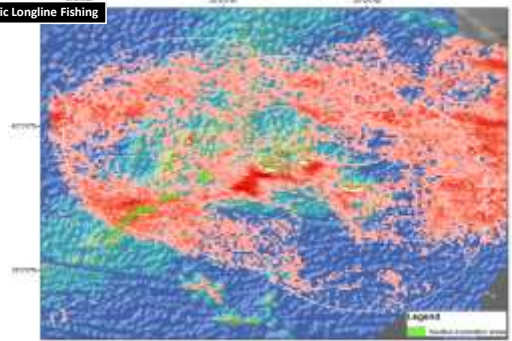
Human activities – Fishing

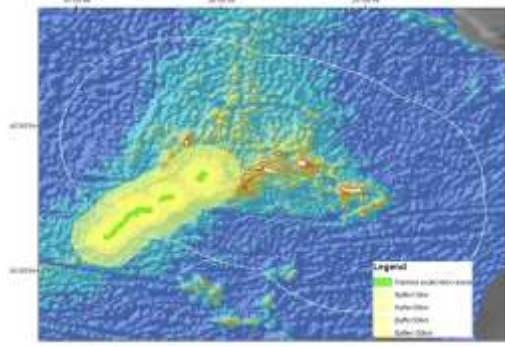Bottom Longline Fishing

Credits: Telmo Morato

Human activities – Fishing

Pelagic Longline Fishing

Credits: Telmo Morato, IMAR
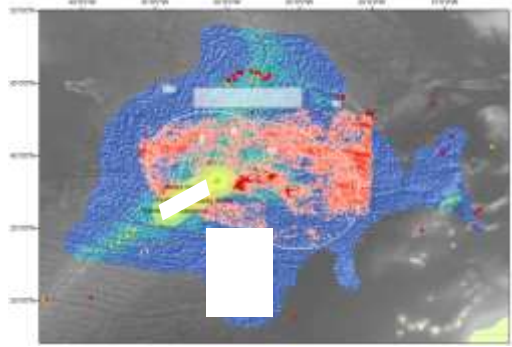
Human activities - Blue Growth opportunities - Mining

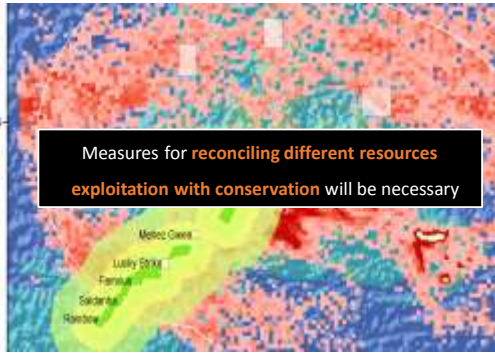Credits: Telmo Morato, IMAR   Massive sufide deposits, manganese nodules, Mn Cobalt crusts

Human activities and conservation

Credits: Telmo Morato, IMAR

Human activities and conservation

Measures for **reconciling different resources exploitation with conservation** will be necessary

Credits: Telmo Morato, IMAR

List of partners and links to other WPs

WP (partners)	Collaborative activities	PM
WP2	*In situ* studies at Condor seamount to characterize total community OM mineralisation; ecophysiology experiments at IMAR aquaria facilities; developments of hydrodynamic - biogeochemical -physiological models for the Condor seamount.	29
WP3 (HWU,IEO, IFREMER, MSS, UCD, UOX)	Meta-barcoding of eDNA studies for biodiversity assessments in the Azores (seawater, sediment, plankton samples, VME indicator taxa and commercially valuable fish species); application of GES, EEF and GOODS to the Azores case study, under present and future ocean conditions.	57.5
WP4 (IFREMER,HWU, IEO, UCD, UOX)	Genetic and life history studies of selected VME indicator species in the Azores (mainly corals and commercially important fish) and oceanographic models to determine the importance of the Azores as a source and/or stepping stones on connectivity patterns in the North Atlantic.	7
WP5 (Utr, NUIG)	Inventory of existing and potential (Blue Growth) ecosystem services and ocean monetary values; assessment of ecosystem services risks and pressures; assessment of willingness to pay for conservation for the Azores Case Study.	2
WP6 (NUIG, Utr)	Creation of maps of VMEs, fish habitat and ecosystem goods and services; carry out Strategic Environmental Assessments; test new Blue Growth scenarios, develop cost efficient environmental assessment and identify appropriate adaptive management measures for the Azores Case Study area.	8
WP7 (SC, NUIG)	Collaborate on science-policy interface activities to ensure societal and policy relevance in the Azores Case Study area; and on the implementation of EU and international regulations and agreements recognising both the economic potential of the Atlantic and the need for sustainable management.	3
WP9 (ODE, AquaTT)	IMAR will subcontract a local NGO that will work in close collaboration with science communication specialists, ODE and AquaTT, to develop and communicate a suite of outreach activities and products in the Azores.	1

List of available datasets

- Dataset on the deep-sea biodiversity, and the ecosystem evaluation framework to identify EBSAs in the deep-sea;

- Seamount ecosystem evaluation framework database, built upon past EU projects such as Coralfish and Hermione;

- Database on Azores vulnerable marine ecosystem (COLETA);

- Database on deep-sea fish in the Azores and on the Condor seamount ecosystem;

- IMAR-UAz video library on deep-sea habitats;

List of planned cruises

Dates	Ship (institute)	Area	ATLAS Case Study	ATLAS WPs	ATLAS Participants	Equipment
15/04/16-31/07/16	RV Arquipélago (DOP/UAç)	Azores (Mid-Atlantic Ridge and Terceira Rift)	8	3,4,6	IMAR-UAz	Experimental fishing equipment
2/07/16-24/07/16	Meteor (Universität Erlangen-Nürnberg)	Azores (Mid-Atlantic Ridge and Terceira Rift)	8	3,4,6	IMAR-UAz	ROV+arm, MBES, SSS, CTD, ADCP, EK-600, Box corer, rock corer, multicorer
16/07/16-06/08/16	Pelagia (NIOZ)	Condor Seamount and Menez Gwen hydrothermal vent field	8	3,6	IMAR-UAz	ROV, UAV
20/09/16 -25/10/16	RV Sarmiento de Gamboa (CSIC)	Alborán Sea to Azores	7,8	1,2,3,4,6	IEO, Ifremer, IMAR-UAz, HWU	ROV+arm & novel plankton sampling device, MBES, SSS, CTD, ADCP, EK-600, Box corer, Van Veen, multicorer
2017-2018	RV Arquipélago (DOP/UAç)	Azores (Mid-Atlantic Ridge and Terceira Rift	8	3,6	IMAR-UAz	landers, cameras
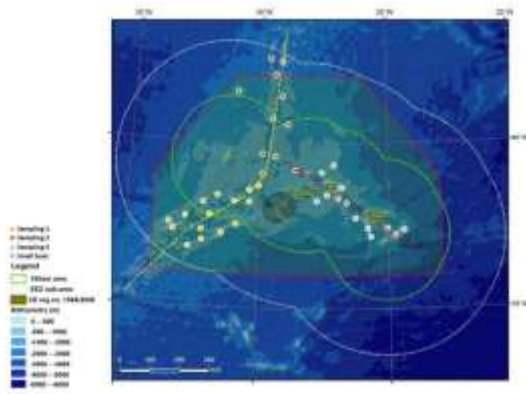
Acknowledgements

• AZORES TEAM

Ana Colaço, Andreia Ressurreição, Arquipélago Crew, Christopher Pham, Gerald Taranto, Fernando Tempera, Filipe Porteiro, Gui Menezes, Inês Martins, Íris Sampaio, José Nuno Pereira, Manuela Ramos, Maria Rakka, Paulo Martins, Pedro Ribeiro, Renato Bettencourt, Ricardo Medeiros, Valentina Matos.