LIFE BaĦAR for N2K Project - 2015 Survey Findings

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on behalf of the
LIFE BaĦAR for N2K Project

MEPA

MINISTRY FOR SUSTAINABLE DEVELOPMENT, THE ENVIRONMENT AND CLIMATE CHANGE

OCEANA

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Faculty of Science
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PARLIAMENTARY SECRETARIAT FOR AGRICULTURE FISHERIES AND ANIMAL RIGHTS

The LIFE BaĦAR for N2K Project (LIFE 12 NAT/MT/000845) Project is 50% co-financed by the EU LIFE+ Funding Programme

NATURA 2000

Legally Protected Habitats

- **Habitats Directive – Directive 92/43/EEC:**
  - Protected marine habitats: seagrass meadows, reefs, sandbanks, caves

- **Mediterranean Regulation - EC 1967/2006:**
  - Fishing with trawl nets, dredges, purse seines, boat seines, shore seines is prohibited above seagrass beds
  - Fishing with trawl nets, dredges, shore seines or similar nets prohibited over coralligenous habitats and maerl beds

Marine Protected Areas in Maltese Islands

First MPA declared in 2005: Rdum Majjiesa and Ras ir-Raħeb

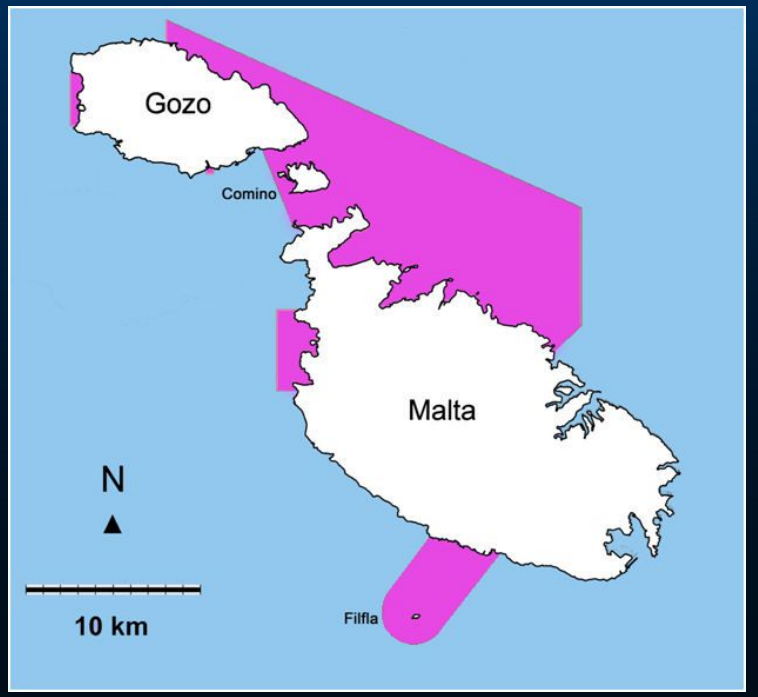
- Area with sandy beaches, boulder fields and cliffs

Second MPA in 2007: Dwejra

- Area with marine caves, reefs, patchy seagrass

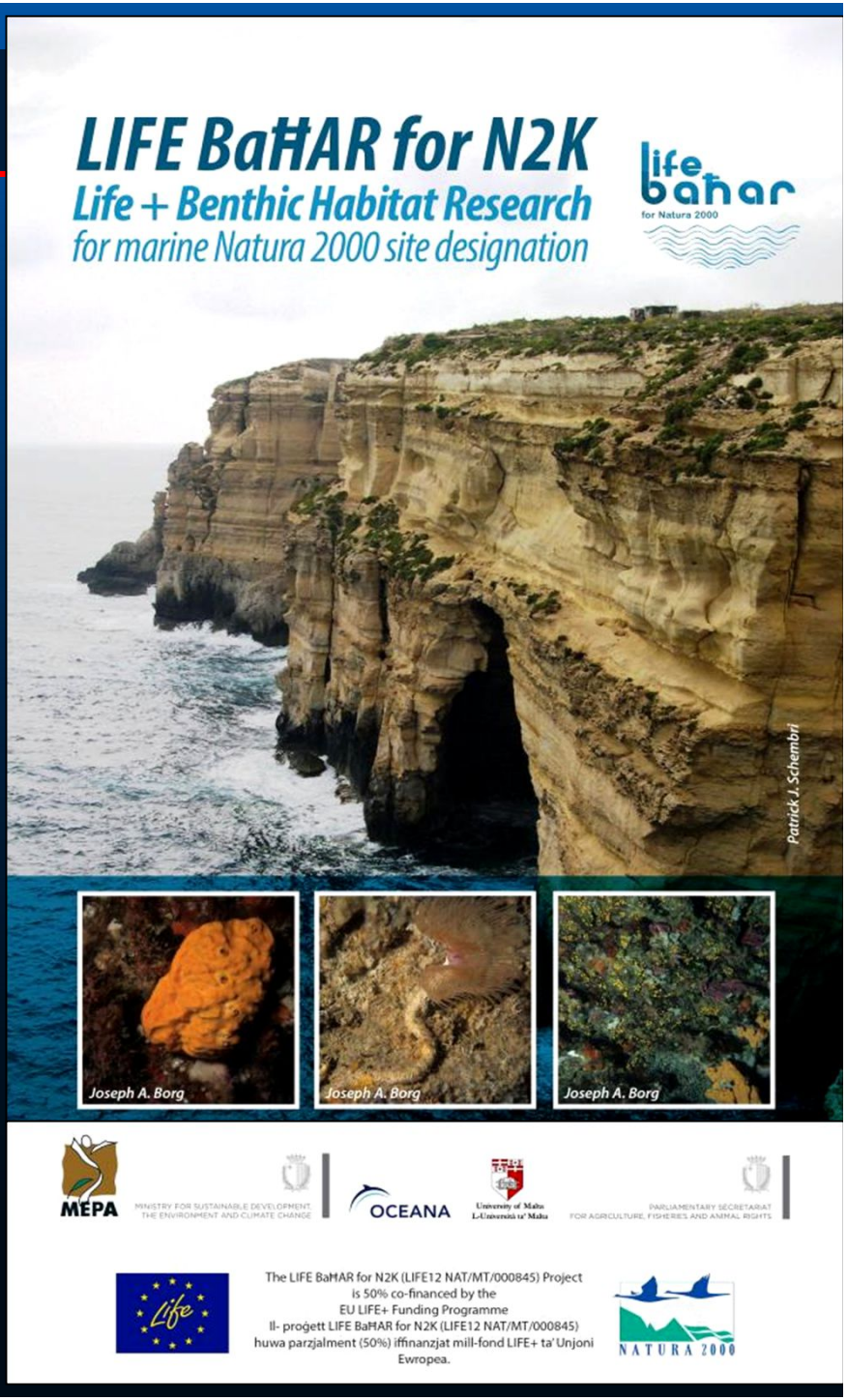
Additional MPAs declared in 2010:

- North East of the Maltese Islands, Mġarr ix-Xini, Għar Lapsi to Filfa
- Sites primarily identified to provide protection for seagrass



LIFE BaĦAR for N2K

- ‘LIFE BaĦAR for N2K’ project aims to support designation of marine NATURA 2000 sites
- Research focus is on characterisation and mapping of sandbanks, reefs, marine caves
- Surveys are conducted in coastal and offshore habitats within the 25 nautical mile Fisheries Management Zone around Malta



LIFE BaĦAR for N2K poster

2015 BaĦAR Survey Expedition

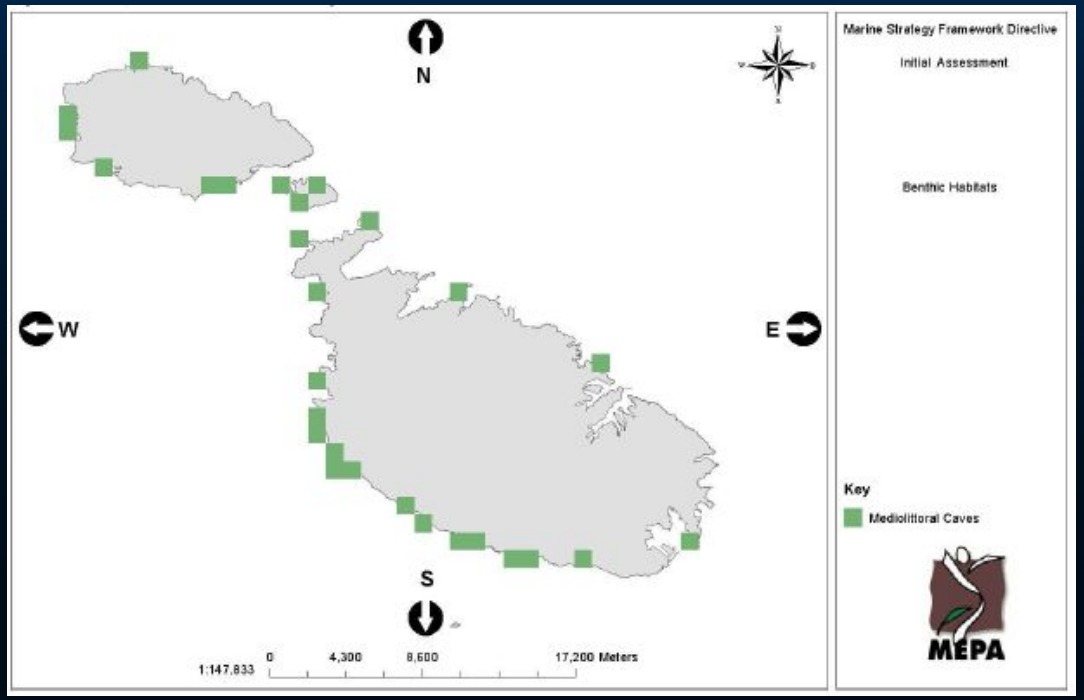
- First expedition with the research catamaran ‘Oceana Ranger’ in summer 2015 aimed primarily to locate ‘reefs’
  - + 85 ROV dives - 81 at offshore sites, 4 at coastal sites
  - + 12 SCUBA dives - all at coastal sites
- ROV dives at offshore sites generated new information on deep sea habitats around Malta
- SCUBA dives at coastal sites generated information on caves


Carlos Minguell © LIFE BaĦAR for N2K/Oceana


Enrique Talledo © LIFE BaĦAR for N2K/Oceana

Past Research on Marine Caves

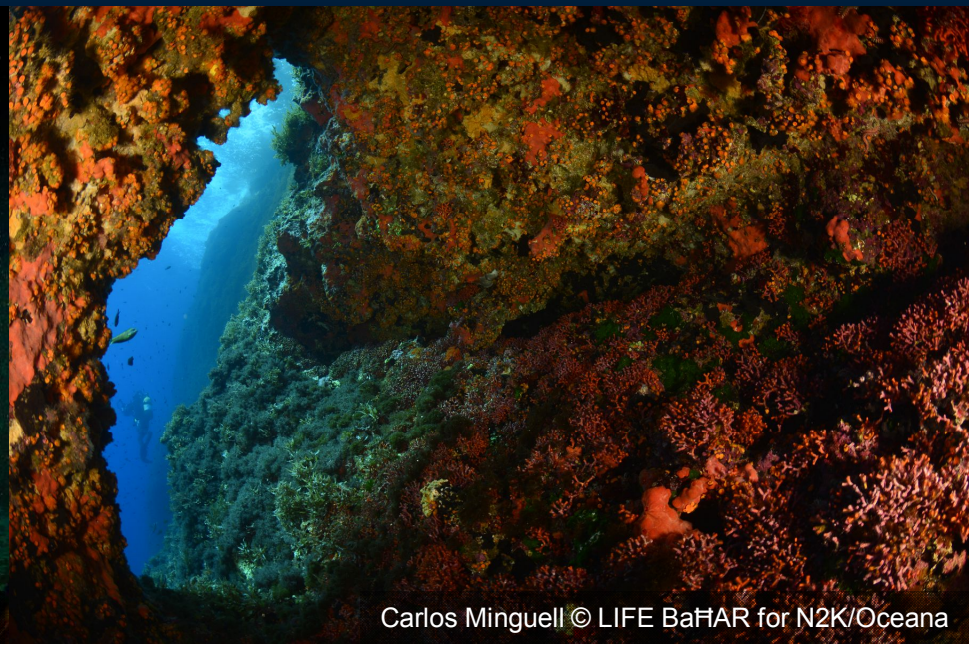
- Partially / completely submerged caves are common in Maltese Islands
- No systematic studies carried out to date
- Very limited information on cave biota and relationship with environmental factors



Location of known marine caves in Maltese Islands

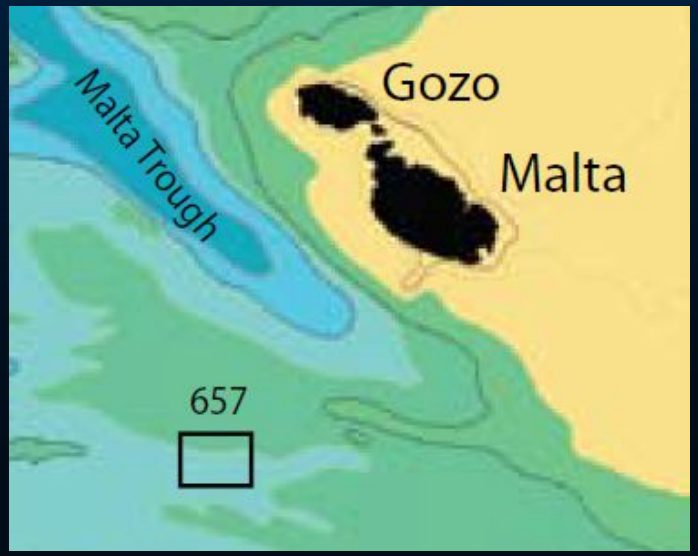
Marine Caves

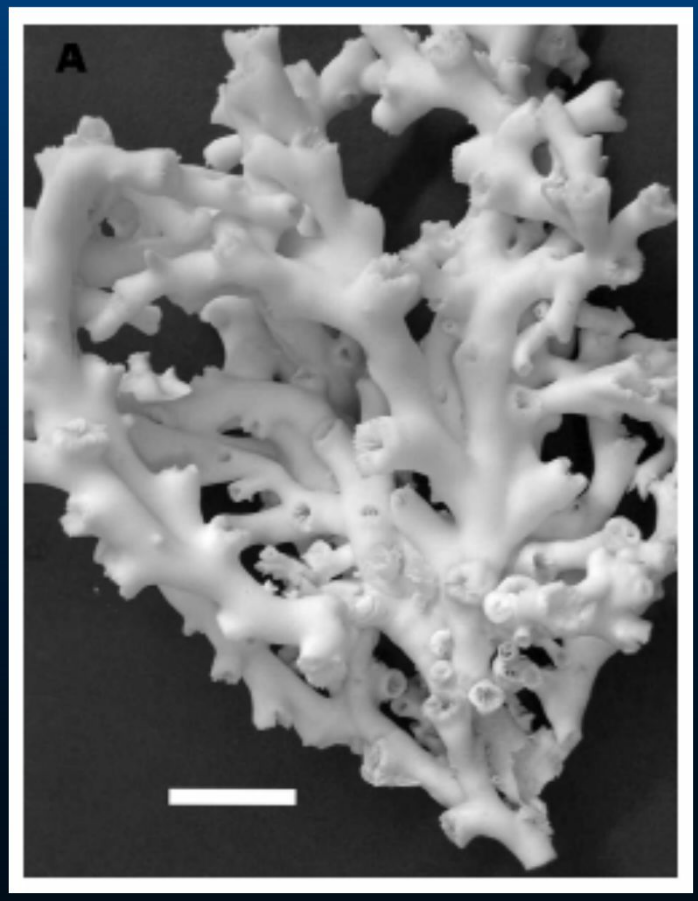
- Caves were mainly surveyed in Gozo: off Wied Għasri & Ta' Cenc
- Several caves which were previously unknown were discovered
- Caves varied in size and shape
- Samples were collected in 7 of the 12 SCUBA dives



Past Research on Reefs

- 2003: Living stony corals found at 400–600 m
- 2006: ROV dive located more living deep-water corals on 150–200 m high escarpment





Live *Lophelia pertusa* recorded in 2003 (Schembri et al. 2007)

Past Research on Reefs

- MARCOS (2007), MEDCOR (2009), & DECORS (2011) research cruises

➢ Mapped and characterized deep-sea coral reefs in ‘South Malta Coral Province’

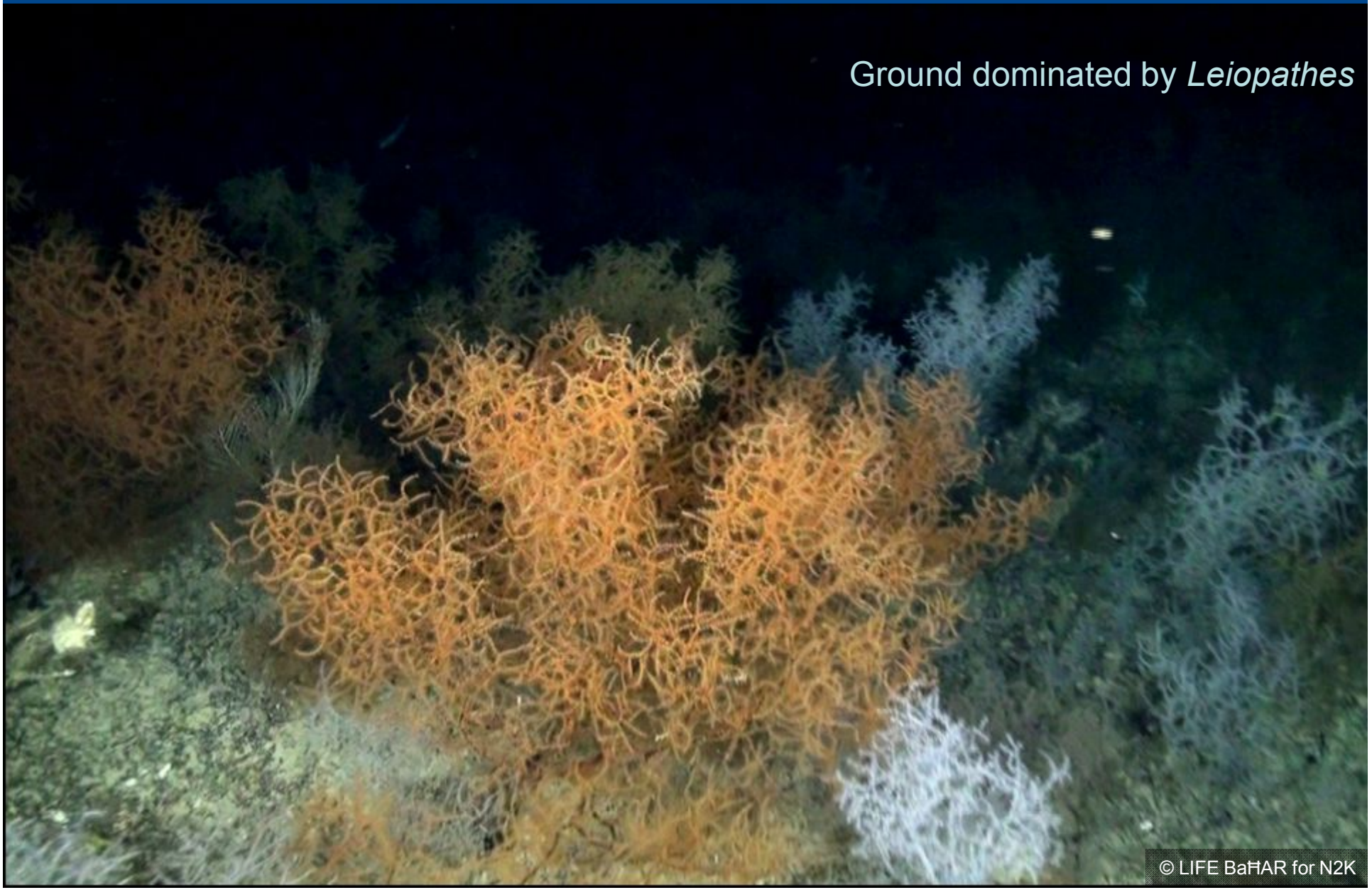
- 2013: Preliminary characterization of black coral forest based on ROV dive at 250–400 m depth, SW of Filfla

Multibeam data available at LIFE BaHAR 2015 surveys

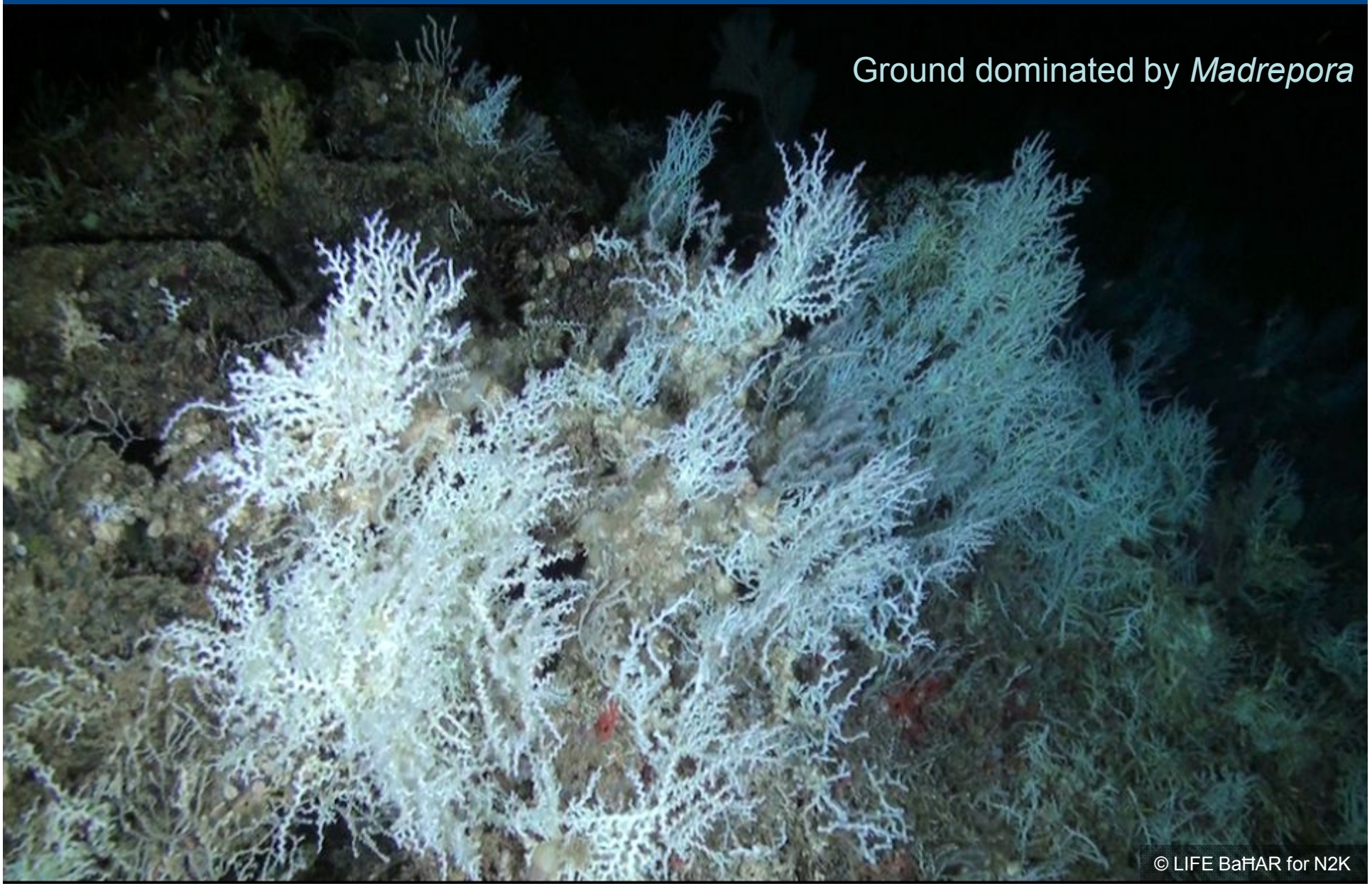
Coral Reefs

- 2015 BaĦAR surveys confirmed previous research which suggested the importance of the ‘South Malta Coral Province’ as a deep sea biodiversity hotspot
- Areas with extensive and diverse living coral assemblages were found at 300–1000 m, including white, black, red and gold corals
- A stratification of coral grounds was observed:
  + Black coral forests peak at 300–400 m
  + Stony corals were most abundant at 500–600 m
  + Gorgonians had a patchy distribution but were dominant in places

Coral Reefs



Coral Reefs



Coral Reefs

Ground dominated by *Callogorgia*

Coral Reefs

- Several other less abundant habitat-forming species were encountered, including several species of soft corals and gorgonians
- A high diversity of associated fauna was also observed. From a preliminary analysis of video footage:
  - + 86 fishes,
  - + 63 cnidarians,
  - + 33 echinoderms,
  - + 32 sponges,
  - + 30 crustaceans,
  - + 27 molluscs,
  - + tunicates, bryozoans, brachiopods, annelids, echiurans…

Coral Reefs

Associated biota

New Depth Record for Red Coral

- Previous depth record for red coral in the Mediterranean was **819 m**, recorded in the Sicily Channel during the MARCOS cruise in 2007
- 2015 BaĦAR project surveys found live red coral colonies at depths of **1017 m**
- Colonies appeared to grow even deeper, but 1000 m was maximum operating depth of the ROV

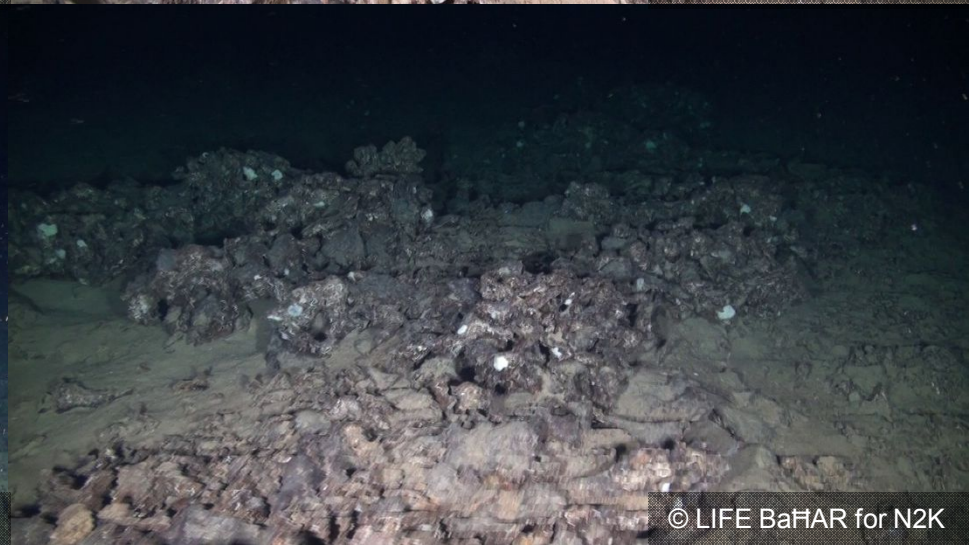
Dead Coral Frameworks

- Areas with extensive dead coral frameworks were located west of Gozo close to the Malta Graben in areas with high sedimentation
- Dead coral frameworks appear to have been mainly three species of stony corals
- In some areas living polyps of rare yellow corals were also observed

Discovery of a Stony Sponge Reef

- Dead (fossilised) stony sponge reef was discovered off the coast of Gozo
- Located at depths of ca 300 m
- Reef appears to be some 7–8 km long
- Additional isolated patches of fossilized ‘lithistid’ sponges were found in nearby areas
- Species associated with the reef included sponges, gorgonians, brittle stars, bryozoans, and hydroids

Discovery of a Stony Sponge Reef



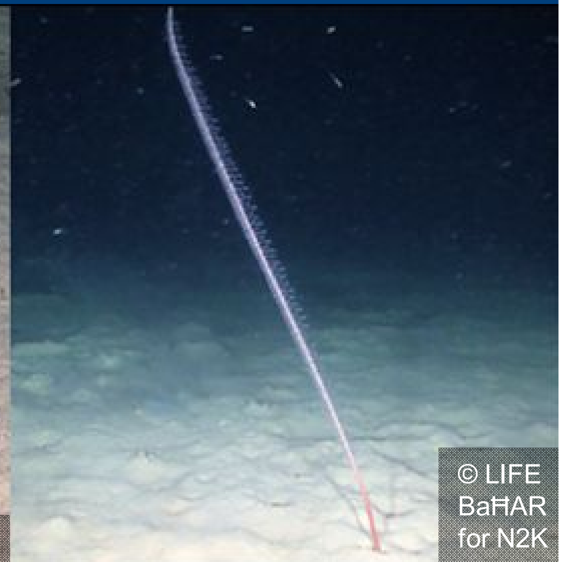
Deep-Water Caves

- Deep-water caves located at 270 m / 320 m depth, west of Gozo
- These caves possibly date back to the Messinian 5 – 7 million years ago

Deep-Water Soft Bottom Habitats

- Lack of accurate bathymetric data for most of survey area resulted in many ROV dives being partially over soft bottom habitats
- Important structuring soft-bottom species were bamboo coral, sea pens, tall sea pens
- Other very abundant species were different species of sea urchins and sea anemones
- In many areas large burrows likely created by Norway lobster were found
- Several species of fish were spotted including hake, greater forkbeard and small sharks

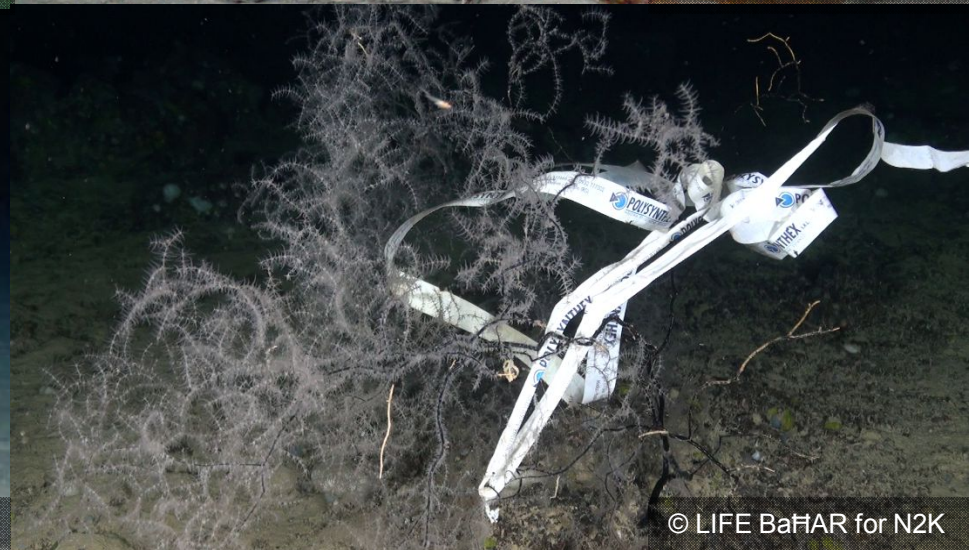
Deep-Water Soft Bottom Habitats



Anthropogenic impacts

- Plastic and other litter was encountered during most dives
- The single most important anthropogenic impact on deep-water biocoenoses is due to discarded fishing gear
- Fish Aggregation Devices (FADs) anchored to the sea floor with limestone slabs / plastic ropes are discarded at the end of traditional lampuki fishing season
- Limestone slabs and ropes serve as substratum for colonisation, but cause damage by becoming entangled with bottom organisms

Anthropogenic impacts



Next Phase

- LIFE BaĦAR for N2K project work is ongoing
- Planned work for 2016:
  - + Evaluation and publication 2015 survey results
  - + Multibeam surveys
  - + ROV surveys


Thank you for listening!