

Photographic catalogue of the invertebrate megafauna identified in the video footage recorded on the continental shelf and submarine canyon off Cap de Creus (NW Mediterranean) as part of the Life+ Indemares project



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1. Introduction

One of the main objectives of the Life+ Indemares project (www.indemares.es) was to better understand the natural and socioeconomic values of several marine areas along the territorial waters of the Spanish State, leading to an informed decision-making process for the designation of new protected areas for the marine environment. Ten large areas were selected, covering a surface of almost 5 million hectares, and representing more than 8% of Spanish territorial waters. The scientific results obtained throughout the project led to the designation of 10 new Sites of Community Importance (SCI) within the Natura 2000 Network in 2014 (BOE, 2014a,b), a significant step forward towards fulfilling the birds (EC, 1979) and habitats directives (EC, 1992) of the European Union.

One of the 10 areas selected corresponded to the “South-West Gulf of Lions Canyon System” (Region code ESZZ16001, <https://eunis.eea.europa.eu/sites/ESZZ16001>). This marine area is located in the southernmost part of the Gulf of Lions (NW Mediterranean), and includes the submarine canyons of Cap de Creus and Lacaze-Duthiers, as well as their adjacent continental shelf (Fig. 1). The Marine Biodiversity, Ecology and Conservation Research Group from the Institute of Marine Sciences of Barcelona (ICM-CSIC) produced a detailed evaluation of the physical and ecological characteristics of the seabed and water column of its shelf and canyon habitats (Gili et al., 2012), providing the necessary scientific information for its proposal as an SCI to the European Union. The designation arrived in 2014, adding 987 km² of offshore marine environment to the Natura 2000 Network in the Mediterranean Sea (Fig. 1; BOE, 2014a).

The application of an ecosystem-based approach to the management of Cap de Creus marine area once protection measures are put in place required a comprehensive study of the different ecological compartments that make up the whole study area. Several multidisciplinary oceanographic cruises performed throughout the project allocated a large sampling effort to the study of the benthic ecosystem, which encompassed the continental shelf and the submarine canyon off Cap de Creus down to 400 m depth. The combined work of geologists and biologists led to a thorough characterization of the main benthic communities dwelling on such a large offshore area (Dominguez-Carrió, 2018), a fundamental objective of the project. The methodology employed to identify and characterize its main benthic communities and the associated impacts of commercial fishing was based on images collected through underwater video platforms, such as Remotely Operated Vehicles (ROVs) and manned submersibles. Understanding how benthic species associate with each other to form stable communities by means of underwater images required an intense taxonomic work in order to unravel the diversity of megabenthic fauna with the maximum detail possible. The involvement of taxonomists in the project allowed for the identification of most of the organisms observed in the video recordings to species or genus level, a task that could only be achieved with the high-quality images obtained and a set of biological samples selectively collected to validate the observations. This detailed work led to the development of a photographic catalogue that includes the invertebrate (morpho)species observed in the images, and that served as basis for the set of ecological studies developed subsequently (see Dominguez-Carrió, 2018 and scientific publications thereafter). Acknowledging that the identification of benthic species from imagery still has its caveats, we felt that this faunistic inventory should be made available since it could be of help to other scientific organizations developing benthic ecology research in other bathyal areas of the Mediterranean Sea.



LIC - ESZZ16001
SISTEMA DE CAÑONES SUBMARINOS
OCIDENTALES DEL GOLFO DE LEÓN

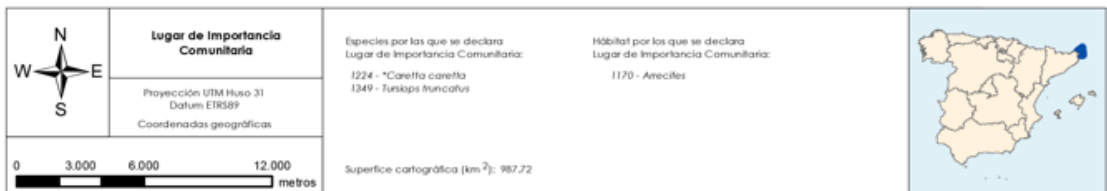
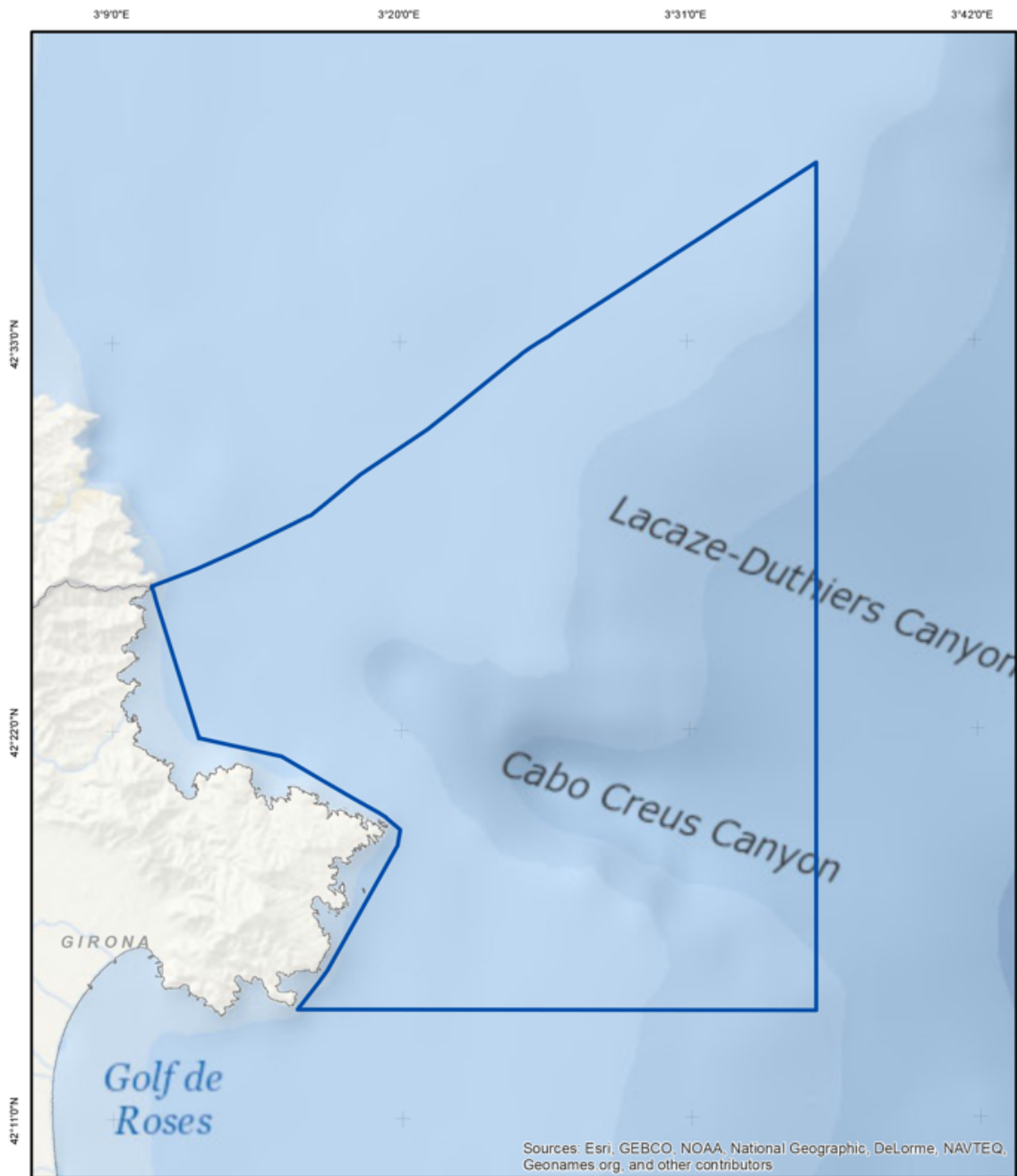


Figure 1. Perimeter of the 987 km² that make up the Site of Community Importance (LIC) “South-West Gulf of Lions canyons system”, included in the Natura 2000 Network under the area code ESZZ16001. Image downloaded from <https://www.miteco.gob.es/es/costas/temas/proteccion-costa/actuaciones-proteccion-costa/girona/LIC-ESZZ16001-Golfo-de-Leon.aspx>

2. Development of the catalogue

The images that make up this catalogue were obtained during several oceanographic cruises on board of the R/V García del Cid (CSIC) between 2007 and 2012, as well as during two complementary surveys using smaller vessels. Those surveys had a clear multidisciplinary approach, and covered a wide range of disciplines, including (a) seabed mapping using multibeam bathymetry, (b) physical oceanography through CTD profiles and the collection of water samples, (c) biological oceanography through the study of pelagic plankton and (d) benthic ecology by means of different techniques, including the collection of samples with Van Veen grabs, box corers and epibenthic sleds, as well as the recordings of underwater video images. More specifically, all imagery was obtained by means of 3 different underwater vehicles:

1. Nemo ROV, operated by Gavin Newman (freelance cameraman/filmmaker; <http://www.underworld-productions.com/>). Medium-sized ROV, full HD camera, unlimited dive time, maximum operational depth of approximately 300 m, equipped with a hydraulic grabber to collect one sample per dive (Fig. 2a).
2. JAGO submarine, operated by Jürgen Schauer and Karen Hissman (Geomar, Kiel; <https://www.geomar.de/en/centre/central-facilities/tlz/jago/overview>). Two-person capacity, three-tone manned submersible, HD camera, maximum operational depth of 400 m, recommended dive time of 3-4 hours, equipped with a hydraulic grabber and a basket to collect multiple biological/geological samples per dive (Fig. 2b).
3. Bleeper EVO, owned and operated by the research team at ICM-CSIC. Small-sized ROV, SD camera, maximum operational depth of 150 m (Fig. 2c).

All underwater images were recorded in HD format (1920x1080), except those collected using the ROV Bleeper Evo, which was only equipped with a SD camera (720x480). Images were recorded in MiniDV tapes in the case of the submarine JAGO and the ROV Bleeper EVO, and directly on a digital support in the case of Nemo ROV. Since images were visualized and edited using the editing software Final Cut Pro 7 (Apple Inc.), all tapes were digitized to .mov files for its analysis.

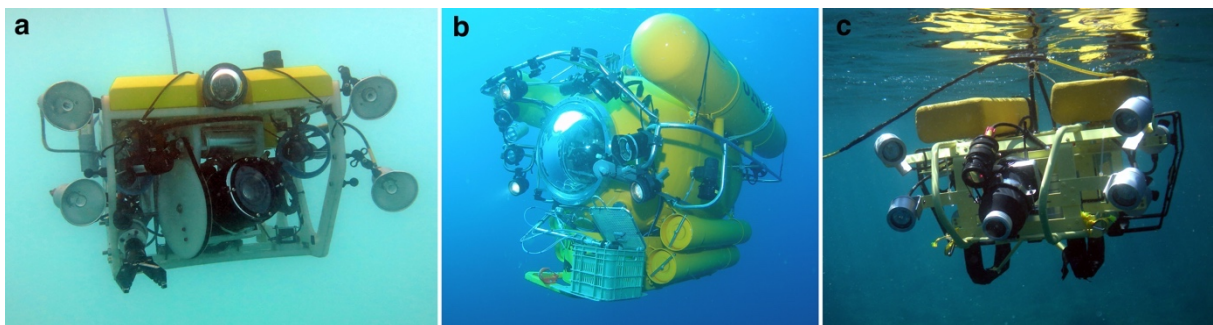


Figure 2. Underwater vehicles used to obtain the video footage from Cap de Creus continental shelf and submarine canyon during the Life+ Indemares cruises. (a) Nemo ROV, operated by Gavin Newman, (b) manned submersible JAGO, operated by Jürgen Schauer and Karen Hissman (Geomar) and (c) Bleeper EVO, operated by the Benthic Suspension Feeders group at the Institute of Marine Sciences (ICM-CSIC).

A total of 60 underwater video transects were performed on the continental shelf and submarine canyon off Cap de Creus (Fig. 3), in depths that ranged between 80 and 400 m. Since the main objective of the work was to characterize the composition and structure of the main megabenthic communities dwelling in the area, dives were planned to cover as much surface as possible while surveying all combinations of depth and substrate type. With an average length of around 500 m per dive, the sum of all dive lengths reached 33 km of seabed filmed. Good quality video sequences represented approximately 80% of the total amount of video footage recorded, which corresponds to more than 47 hours of filming and a total area sampled of almost 1,000 m².

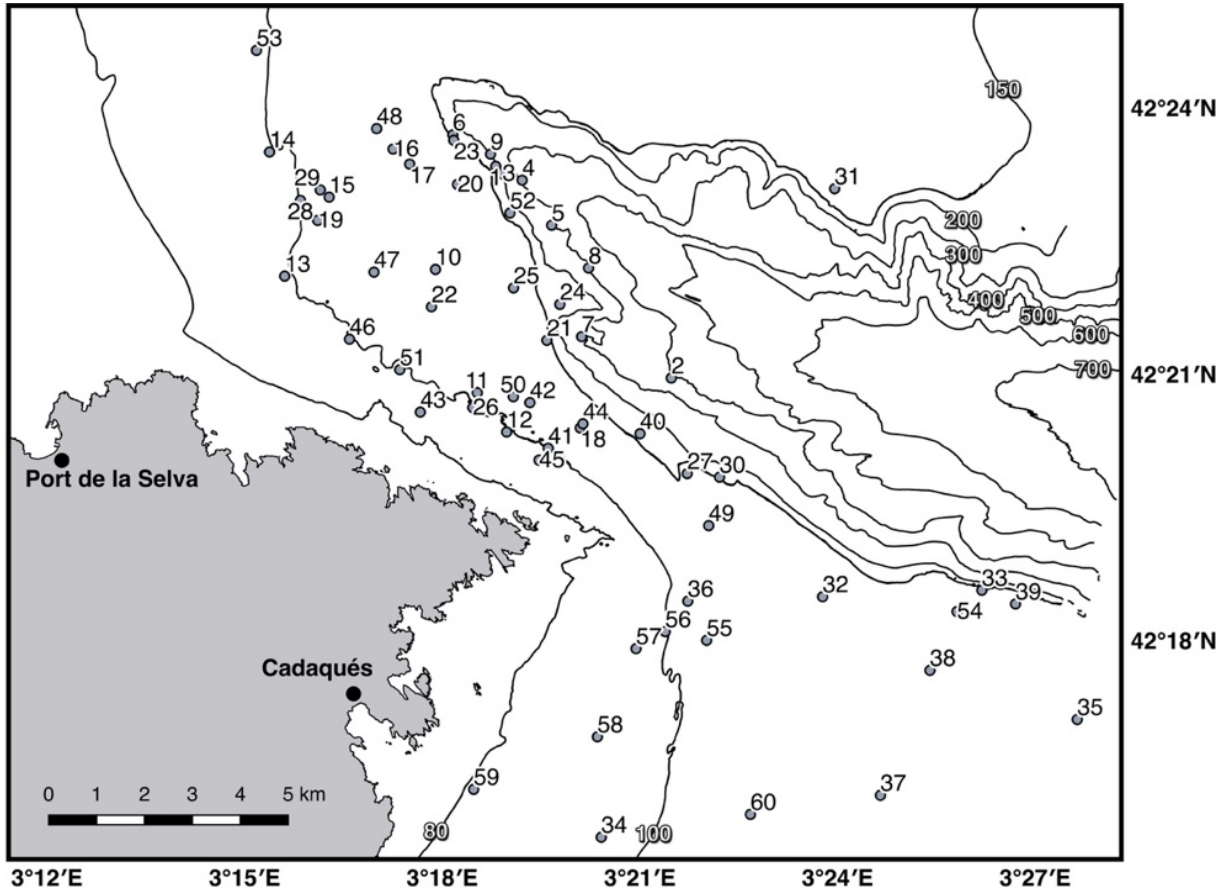


Figure 3. Location of the 60 underwater dives performed in Cap de Creus continental shelf and submarine canyon whose images were used to build up the photographic inventory. Dives were numbered chronologically, following the date and time in which they were recorded. Details of each dive, such as date, time, start/ end geographical coordinates, min-max depth, valid amount of video footage recorded, distance covered over the seabed and total area analyzed for the characterization of benthic communities can be found in Dominguez-Carrió (2018).

The first step taken towards the completion of this photographic catalogue consisted in a comprehensive search through the available footage for high-quality images of sessile or low-mobility invertebrate species. When close-up or detailed images were found, still pictures were extracted from the video footage. The remaining organisms for which no close-up images existed were also photographed and added to the inventory. Once images for all species were compiled, those that could unquestionably be identified to genus/species level from the video footage were catalogued. A morphospecies name was provided to the remaining taxa, classified at higher taxonomic levels. Once completed, all images were then taken to taxonomists for a more detailed examination.

A large number of the organisms observed in the images required the collection of biological samples in order to correctly assign them to a particular species. For this reason, a set of samples from the continental shelf and the submarine canyon were collected in each of the oceanographic surveys by means of two different methods:

- a. Rauschert epibenthic sled (Fig. 4a). This compact sled was towed over the soft bottoms of the continental shelf at 1-2 knots for 5-10 min in areas of interest with the objective of collecting macrofauna organisms that either live over the seafloor or half-buried inside the sediment (see examples of fauna collected in Fig. 4b).
- b. The hydraulic grabber of the submersible JAGO (Fig. 4c) or the ROV Nemo (Fig. 4d). Several organisms for which identification to species level was not clear were selectively collected using the grabber of the underwater vehicles. In most cases, those species were found on hard substrates or at greater depths, where the use of an epibenthic sled was not suited.

Samples collected were sorted, photographed and preserved in order to be forwarded to specialists of the different taxa for further identification. With the biological samples identified to species/genus level (when possible), their IDs were linked to the organisms observed in the video footage with the help of taxonomists. The names of all taxa identified were checked against the reference list provided by the World Register of Marine Species for consistency (WoRMs, www.marinespecies.org).

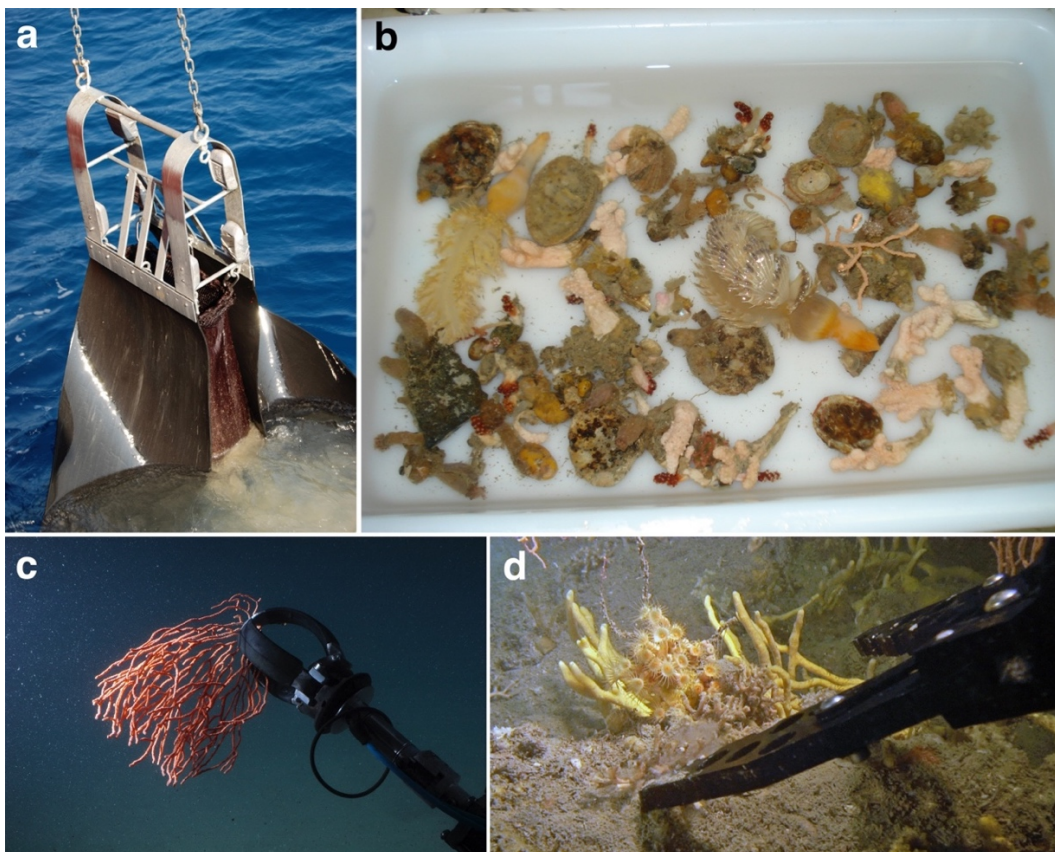


Figure 4. Methods for the collection of benthic invertebrates. (a) Rauschert sled, a small but effective bottom trawl used to capture organisms dwelling on soft bottoms areas of the continental shelf. (b) Aspect of some of the organisms collected with the Rauschert sled at ~110 m depth. (c-d) Grabbers of the submarine JAGO (left) and Nemo ROV (right) used to selectively collect organisms of interest found on hard substrates or in areas with complex relief.

3. Main results

Around 100,000 organisms were annotated from the images recorded during the 60 underwater dives performed in Cap de Creus continental shelf and submarine canyon. These organisms belonged to ~170 different (morpho)species from 9 different phyla. Most (morpho)species could be assigned to species (55%) or genus (15%) level, but until now there are still 35% classified in higher taxonomic levels due to the complexity of providing better identifications from imagery or due to the lack of samples. Overall, Porifera was the most diverse phylum (Fig. 5a), with almost 60 (morpho)species identified, of which 45% were assigned to species and 22% to genus level. The second most diverse phylum was Cnidaria, with a total of 36 (morpho)species identified, being the group with the highest percentage of fauna identified to species level (80%). The remaining groups together added up to less than 50% of the total number of species, with a similar number of species per phylum (10-16), except Brachiopoda (Fig. 5a). In terms of abundance, Echinodermata was the phylum with the highest number of records (Fig. 5b), with almost 50% of the organisms identified in the images assigned to that group. This was mainly due to the very high densities recorded for the brittle star of the species *Ophiothrix fragilis* in selected areas of the continental shelf, exceeding 6,000 org·m⁻². Cnidaria was the second most abundant phylum (Fig. 5b), with most organisms identified within this group belonging to the Class Anthozoa. More information regarding the species composition and the structure of the megabenthic communities found in Cap de Creus continental shelf and submarine canyon that derived from the analyses of the video footage can be found in Dominguez-Carrió (2018) and the scientific publications thereafter.

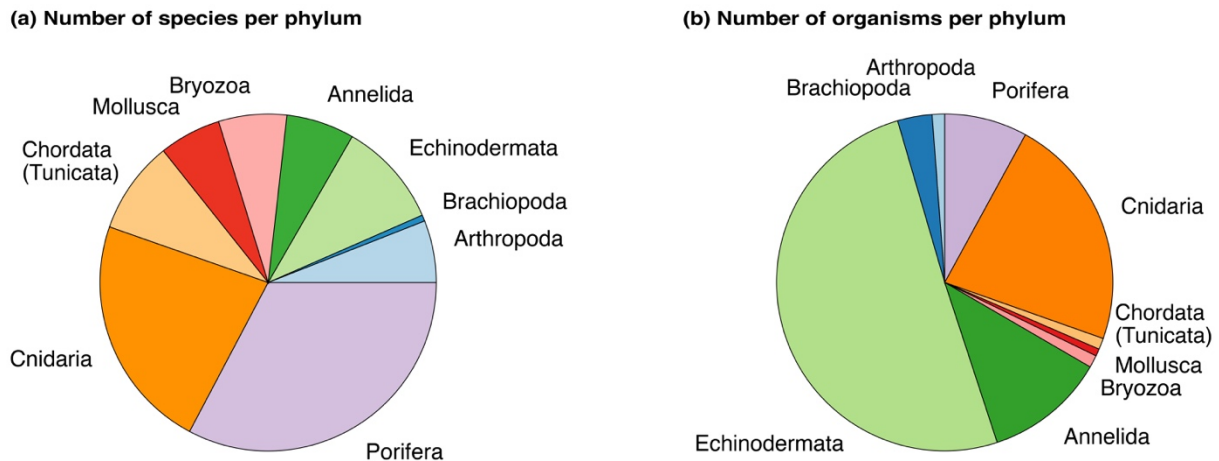


Figure 5. Pie charts displaying (a) the percentage of species identified in the video footage organized by phylum and (b) the percentage of organisms annotated by phylum.

4. Acknowledgements

The 2007 cruise on board R/V Garcia del Cid with the manned submersible JAGO was supported by the European Project HERMES (Goce-CT-2005-511234-I), the Spanish Project DEEP CORAL (CTM2005-07756-C02-02/MAR) and Acciones Complementarias (CTM2007-28758-E/MAR). The EU project Life+ Indemares (LIFE07/NAT/E/000732) funded the 2009, 2010 & 2012 cruises on board R/V Garcia del Cid and the littoral surveys

with Bleeper EVO in years 2009 and 2013. This photographic inventory would not have been possible without the assistance of a large number of people involved in the studies performed in Cap de Creus as part of the Life+ Indemares Project. We would like to thank the crew of the R/V García del Cid (UTM-CSIC), the ROV pilot Gavin Newman and the members of the JAGO Team Jürgen Schauer and Karen Hissmann (Geomar, Kiel), who all worked very hard to obtain such high-quality video footage. We are also grateful for the help of the scientists and technicians Susana Requena, Teresa Madurell, Stefano Ambroso, Claudio Lo Iacono, Guillem Corbera, Alejandro Olariaga, Andreu Santín, Jordi Grinyó and Ariadna Purroy (ICM-CSIC), who participated in the different oceanographic cruises and aided in the preparation/conservation of the biological samples and/or in the processing of the video images. We would also like to acknowledge the sponge specimens provided by Sandra Mallol (COB-IEO) as part of by-catch surveys with fishermen of the ECOSAFIMED project. CD-C was supported by the EU funded projects LIFE+ Indemares (LIFE07/NAT/E/000732) and ENPI ECOSAFIMED (ENPI CBC MED 2007-2013).

5. References

BOE (2014a) Orden AAA/1299/2014, de 9 de julio, por la que se aprueba la propuesta de inclusión en la lista de lugares de importancia comunitaria de la Red Natura 2000 de los espacios marinos ESZZ16001 Sistema de cañones submarinos occidentales del Golfo de León, ESZZ16002 Canal de Menorca, ESZZ12002 Volcanes de fango del Golfo de Cádiz y ESZZ12001 Banco de Galicia. Boletín Oficial del Estado, Madrid.

BOE (2014b) Orden AAA/2280/2014, de 1 de diciembre, por la que se aprueba la propuesta de inclusión en la lista de lugares de importancia comunitaria de la Red Natura 2000 de los espacios marinos ESZZ12003 Sistema de Cañones Submarinos de Avilés, ESZZ16003 Sur de Almería-Seco de los Olivos, ESZZ16005 Espacio Marino de Alborán, ESZZ16004 Espacio Marino de Illes Columbretes y ESZZ15001 Banco de la Concepción. Boletín Oficial del Estado, Madrid.

Dominguez-Carrió, C. (2018) ROV-based ecological study and management proposals for the offshore marine protected area of Cap de Creus (NW Mediterranean). PhD thesis. Universitat de Barcelona, Spain. <http://hdl.handle.net/2445/125244>.

EC (1979) Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds.

EC (1992) Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

Gili, J.M., Madurell, T., Requena, S., Orejas, C., Gori, A., Purroy, A., Dominguez-Carrió, C., Lo Iacono, C., Isla, E., Lozoya, J. P., Grinyó, J. (2011) Caracterización física y ecológica del área marina del Cap de Creus: Informe final área LIFE+ INDEMARES (LIFE07/NAT/E/000732). Fundación Biodiversidad, Madrid. 272 pp.

6. Photographic catalogue

Phylum Porifera

Acanthodendrilla sp.



Phylum: Porifera
Class: Demospongiae
Subclass: Keratosa
Order: Dendroceratida
Family: Dictyodendrillidae

Amphilectus fucorum (Esper, 1794)



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Poecilosclerida
Family: Esperipsidae

Axinella damicornis (Esper, 1794)



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Axinellida
Family: Axinellidae

Axinella polypoides Schmidt, 1862



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Axinellida
Family: Axinellidae

***Axinella verrucosa* (Esper, 1794)**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Axinellida
Family: Axinellidae

***Ciocalypta penicillus* Bowerbank, 1862**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Suberitida
Family: Halichondriidae

***Cliona celata* Grant, 1826**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Clionaida
Family: Clionaidae

***Crella* sp.1**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Poecilosclerida
Family: Crellidae

***Crella* sp.2**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Poecilosclerida
Family: Crellidae

***Dendrilla cirsioides* Topsent, 1893**



Phylum: Porifera
Class: Demospongiae
Subclass: Keratosa
Order: Dendroceratida
Family: Darwinellidae

***Dendroxea lenis* (Topsent, 1892)**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Haplosclerida
Family: Chalinidae

***Desmacidon fruticosum* (Montagu, 1814)**



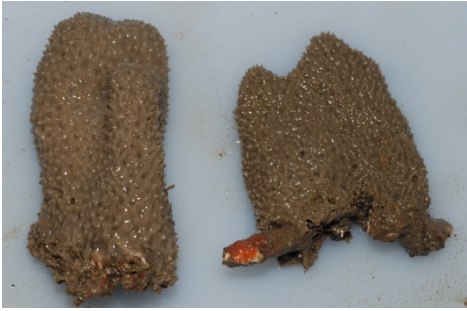
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Family: Desmacididae

***Dictyonella* sp.**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Bubarida
Family: Dictyonellidae

***Dysidea avara* (Schmidt, 1862)**



Phylum: Porifera
Class: Demospongiae
Subclass: Keratosa
Order: Dictyoceratida
Family: Dysideidae

***Dysidea tupha* (Pallas, 1766)**



Phylum: Porifera
Class: Demospongiae
Subclass: Keratosa
Order: Dictyoceratida
Family: Dysideidae

Haliclona (Halichocona) sp.1



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Haplosclerida
Family: Chalinidae

Haliclona (Halichocona) sp.2



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Haplosclerida
Family: Chalinidae

Haliclona (Reniera) sp.



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Haplosclerida
Family: Chalinidae

***Haliclona cf. elegans* (Lendenfeld, 1887)**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Haplosclerida
Family: Chalinidae

***Haliclona* sp.**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Haplosclerida
Family: Chalinidae

***Hemimycale columella* (Bowerbank, 1874)**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Poecilosclerida
Family: Hymedesmiidae

***Hemimycale cf. mediterranea* Uriz, Garate & Agell, 2017**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Poecilosclerida
Family: Hymedesmiidae

***Hexadella cf. pruvoti* Topsent, 1896**



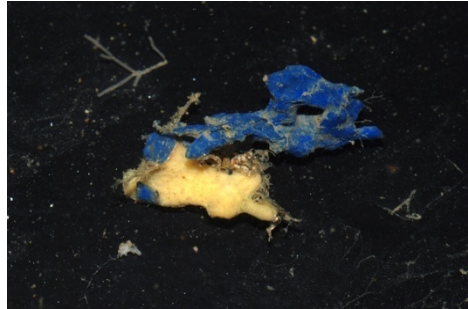
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Order: Verongiida
Family: Ianthellidae

***Hexadella* sp.**



Phylum: Porifera
Class: Demospongiae
Subclass: Verongimorpha
Order: Verongiida
Family: Ianthellidae

***Hymedesmia* sp.**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Poecilosclerida
Family: Hymedesmiidae

***Hyrtios collectrix* (Schulze, 1880)**



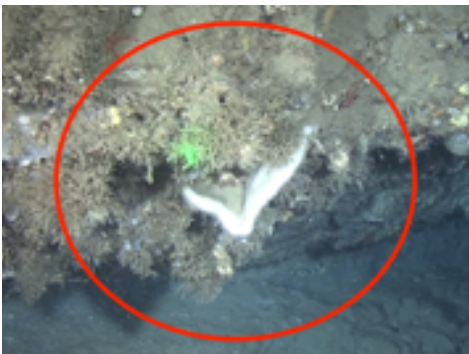
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Class: Demospongiae
Subclass: Keratosa
Order: Dictyoceratida
Family: Thorectidae

***Iophon* sp.**



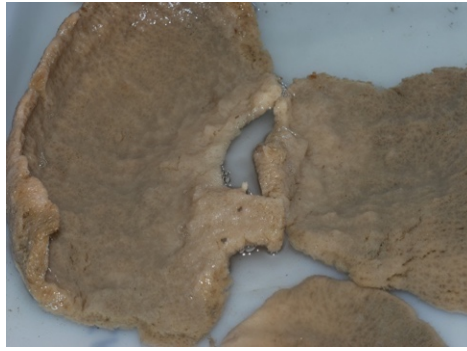
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Subclass: Heteroscleromorpha
Order: Poecilosclerida
Family: Acarnidae

***Pachastrella monilifera* Schmidt, 1868**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Tetractinellida
Family: Pachastrellidae

***Poecillastra compressa* (Bowerbank, 1866)**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Tetractinellida
Family: Vulcanellidae

cf. *Polymastia boletiformis* (Lamarck, 1815)



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Polymastiida
Family: Polymastiidae

***Polymastia* sp.**



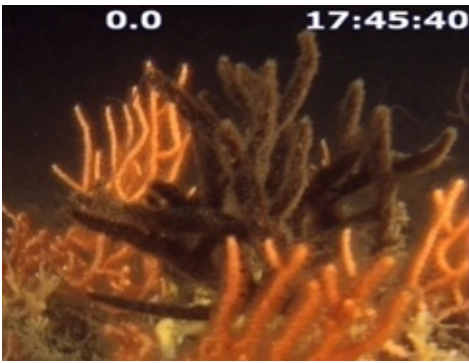
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Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Polymastiida
Family: Polymastiidae

***Raspailia (Parasyringella) humilis* Topsent, 1892**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Axinellida
Family: Raspailiidae

***Raspailia (Raspailia) viminalis* Schmidt, 1862**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Axinellida
Family: Raspailiidae

***Rhizaxinella* sp.**



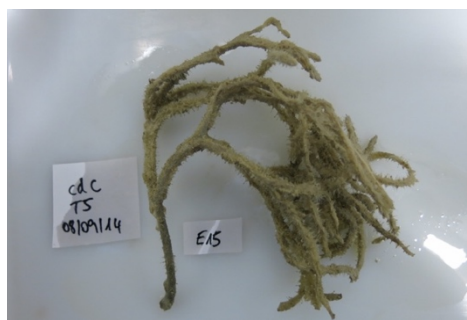
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Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Suberitida
Family: Suberitidae

***Sarcotragus foetidus* Schmidt, 1862**



Phylum: Porifera
Class: Demospongiae
Subclass: Keratosa
Order: Dictyoceratida
Family: Irciniidae

***Stelligera stuposa* (Ellis & Solander, 1786)**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Axinellida
Family: Stelligeridae

***Suberites domuncula* (Olivi, 1792)**



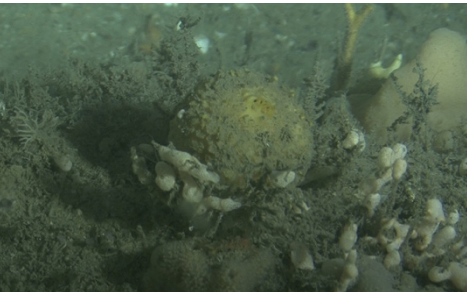
Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Suberitida
Family: Suberitidae

***Suberites syringella* (Schmidt, 1868)**



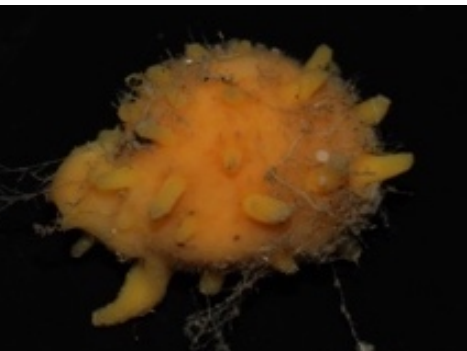
Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Suberitida
Family: Suberitidae

***Tethya aurantium* (Pallas, 1766)**



Phylum: Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Tethyida
Family: Tethyidae

***Weberella bursa* (Linnaeus, 1758)**



Porifera
Class: Demospongiae
Subclass: Heteroscleromorpha
Order: Polymastiida
Family: Polymastiidae

Unidentified encrusting Porifera sp.1



Phylum: Porifera

Unidentified encrusting Porifera sp.2



Phylum: Porifera

Unidentified encrusting Porifera sp.4



Phylum: Porifera

Unidentified encrusting Porifera sp.5



Phylum: Porifera

Unidentified encrusting Porifera sp.6



Phylum: Porifera

Unidentified encrusting Porifera sp.7



Phylum: Porifera

Unidentified encrusting Porifera sp.9



Phylum: Porifera

Unidentified encrusting Porifera sp.10



Phylum: Porifera

Unidentified erect Porifera sp.1



Phylum: Porifera

Unidentified erect Porifera sp.2



Phylum: Porifera

Unidentified erect Porifera sp.3



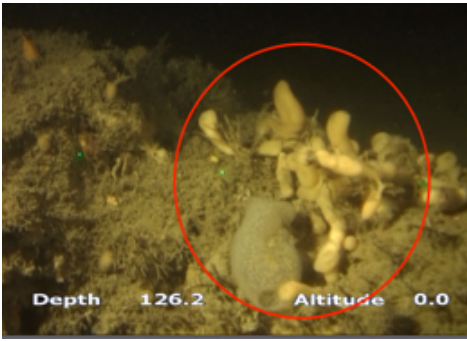
Phylum: Porifera

Unidentified erect Porifera sp.4



Phylum: Porifera

Unidentified erect Porifera sp.5



Phylum: Porifera

Unidentified erect Porifera sp.7



Phylum: Porifera

Unidentified erect Porifera sp.8



Phylum: Porifera

Unidentified erect Porifera sp.9



Phylum: Porifera

Unidentified erect Porifera sp.10



Phylum: Porifera

Unidentified erect Porifera sp.11



Phylum: Porifera

Unidentified erect Porifera sp.12



Phylum: Porifera

Phylum Cnidaria

***Alcyonium coralloides* (Pallas, 1766)**



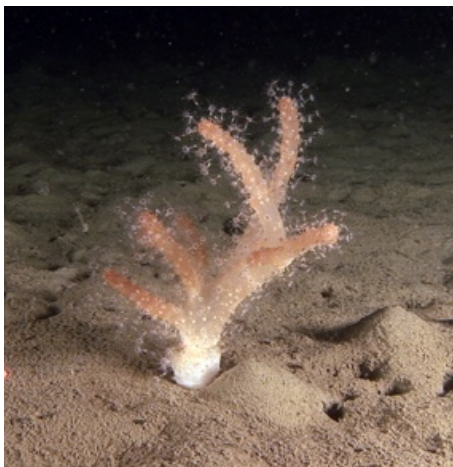
Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Octocorallia
 Order: Alcyonacea
 Suborder: Alcyoniina
 Family: Alcyoniidae

***Alcyonium cf. glomeratum* (Hassall, 1843)**



Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Octocorallia
 Order: Alcyonacea
 Suborder: Alcyoniina
 Family: Alcyoniidae

***Alcyonium palmatum* Pallas, 1766**



Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Octocorallia
 Order: Alcyonacea
 Suborder: Alcyoniina
 Family: Alcyoniidae

***Andresia partenopea* (Andrès, 1883)**



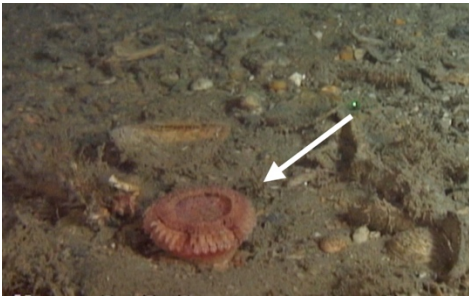
Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Hexacorallia
 Order: Actiniaria
 Suborder: Enthemonae
 Superfamily: Actinioidea
 Family: Andresiidae

***Arachnanthus oligopodus* (Cerfontaine, 1891)**



Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Ceriantharia
 Order: Penicillaria
 Family: Arachnactidae

***Capnea sanguinea* Forbes, 1841**



Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Hexacorallia
 Order: Actiniaria
 Suborder: Enthemonae
 Superfamily: Actinioidea
 Family: Capneidae

***Caryophyllia (Caryophyllia) smithii* Stokes & Broderip, 1828**



Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Hexacorallia
 Order: Scleractinia
 Family: Caryophylliidae

***Cavernularia pusilla* (Philippi, 1835)**



Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Octocorallia
 Order: Pennatulacea
 Suborder: Sessiliflorae
 Family: Veretillidae

***cf. Cerianthus membranaceus* (Gmelin, 1791)**



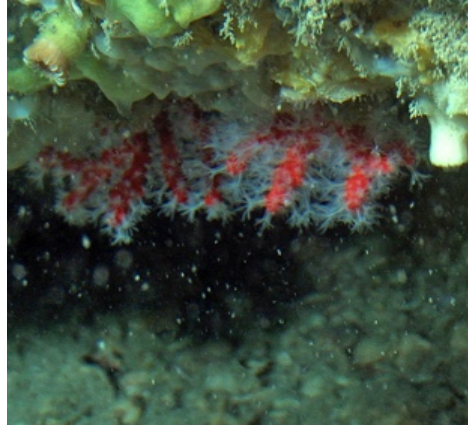
Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Ceriantharia
 Order: Spirularia
 Family: Cerianthidae

cf. Muriceides sp. / *cf. Villogorgia* sp.



Phylum: Cnidaria
Class: Anthozoa
Subclass: Octocorallia
Order: Alcyonacea
Suborder: Holaxonia
Family: Plexauridae

Corallium rubrum (Linnaeus, 1758)



Phylum: Cnidaria
Class: Anthozoa
Subclass: Octocorallia
Order: Alcyonacea
Suborder: Scleraxonia
Family: Coralliidae

Dendrophyllia cornigera (Lamarck, 1816)



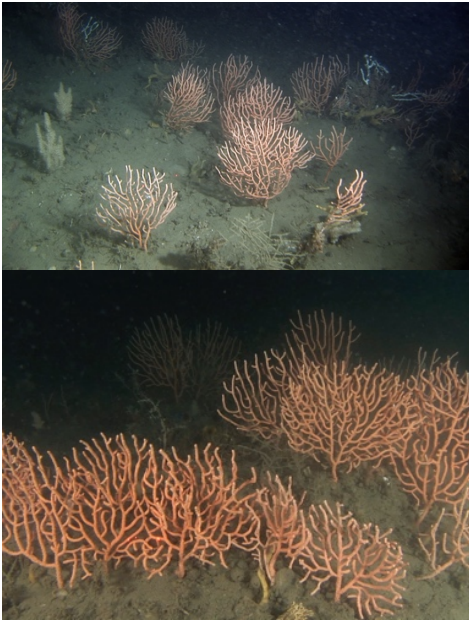
Phylum: Cnidaria
Class: Anthozoa
Subclass: Hexacorallia
Order: Scleractinia
Family: Dendrophylliidae

Epizoanthus sp.



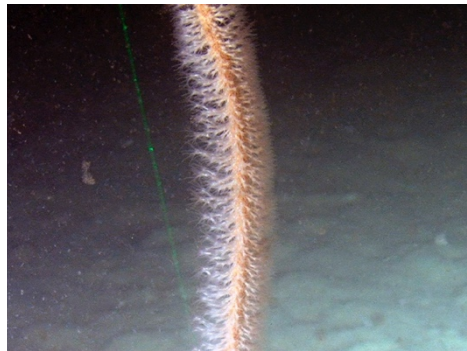
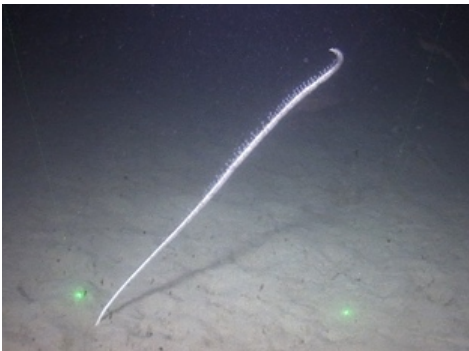
Phylum: Cnidaria
Class: Anthozoa
Subclass: Hexacorallia
Order: Zoantharia
Suborder: Macrocnemina
Family: Epizoanthidae

***Eunicella cavolini* (Koch, 1887)**



Phylum: Cnidaria
Class: Anthozoa
Subclass: Octocorallia
Order: Alcyonacea
Suborder: Holaxonia
Family: Gorgoniidae

***Funiculina quadrangularis* (Pallas, 1766)**



Phylum: Cnidaria
Class: Anthozoa
Subclass: Octocorallia
Order: Pennatulacea
Family: Funiculinidae

***Leptogorgia sarmentosa* (Esper, 1789)**



Level reached: species

Phylum: Cnidaria
Class: Anthozoa
Subclass: Octocorallia
Order: Alcyonacea
Suborder: Holaxonia
Family: Gorgoniidae

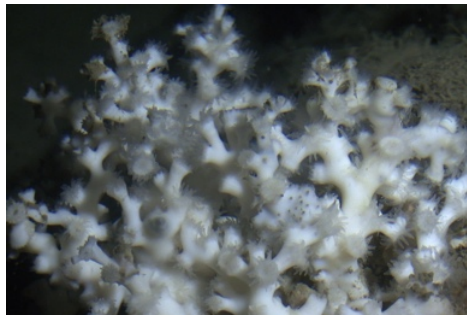
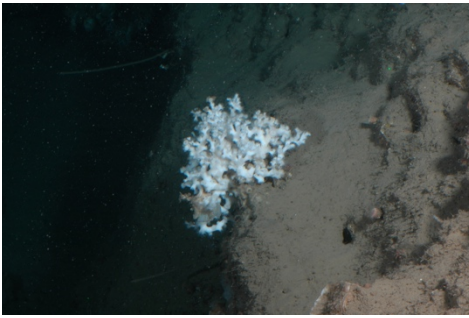
***Leptopsammia pruvoti* Lacaze-Duthiers, 1897**



Level reached: species

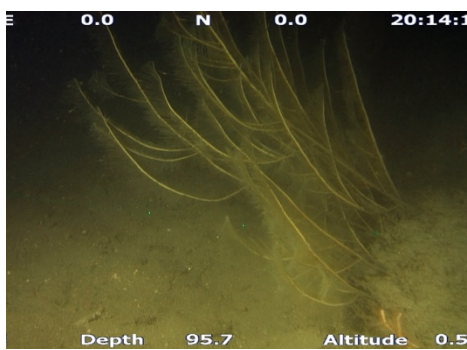
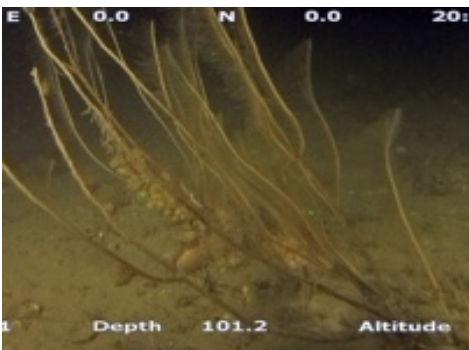
Phylum: Cnidaria
Class: Anthozoa
Subclass: Hexacorallia
Order: Scleractinia
Family: Dendrophylliidae

***Lophelia pertusa* (Linnaeus, 1758)**



Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Hexacorallia
 Order: Scleractinia
 Family: Caryophylliidae

***Lytocarpia myriophyllum* (Linnaeus, 1758)**



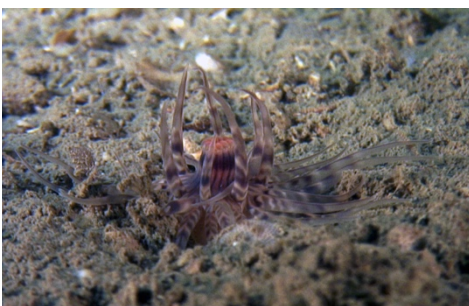
Phylum: Cnidaria
 Class: Hydrozoa
 Subclass: Hydroidolina
 Order: Leptothecata
 Superfamily: Plumularioidea
 Family: Aglaopheniidae

***Madrepora oculata* Linnaeus, 1758**



Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Hexacorallia
 Order: Scleractinia
 Family: Oculinidae

***Mesacmaea mitchellii* (Gosse, 1853)**



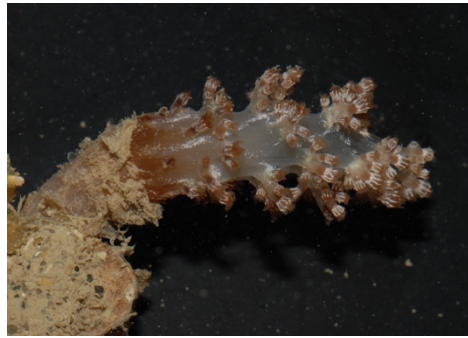
Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Hexacorallia
 Order: Actiniaria
 Suborder: Enthemonae
 Superfamily: Actinioidea
 Family: Haloclavidae

***Nemertesia ramosa* (Lamarck, 1816)**



Phylum: Cnidaria
 Class: Hydrozoa
 Subclass: Hydroidolina
 Order: Leptothecata
 Superfamily: Plumularioidea
 Family: Plumulariidae

***Paralcyonium spinulosum* (Delle Chiaje, 1822)**



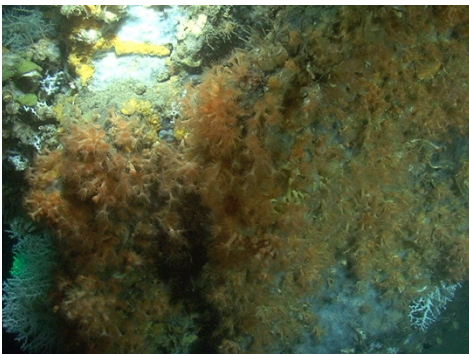
Phylum: Cnidaria
Class: Anthozoa
Subclass: Octocorallia
Order: Alcyonacea
Suborder: Alcyoniina
Family: Paralcyoniidae

***Paramuricea clavata* (Risso, 1826)**



Phylum: Cnidaria
Class: Anthozoa
Subclass: Octocorallia
Order: Alcyonacea
Suborder: Holaxonia
Family: Plexauridae

***Parazoanthus axinellae* s.l. (Schmidt, 1862)**



Phylum: Cnidaria
Class: Anthozoa
Subclass: Hexacorallia
Order: Zoantharia
Suborder: Macrocnemina
Family: Parazoanthidae

***Pennatula rubra* (Ellis, 1761)**



Phylum: Cnidaria
Class: Anthozoa
Subclass: Octocorallia
Order: Pennatulacea
Family: Pennatulidae

***Pteroeides spinosum* (Ellis, 1764)**



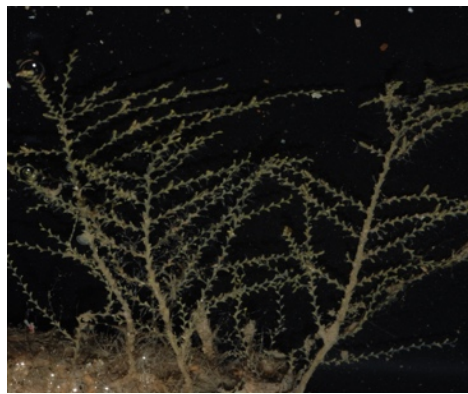
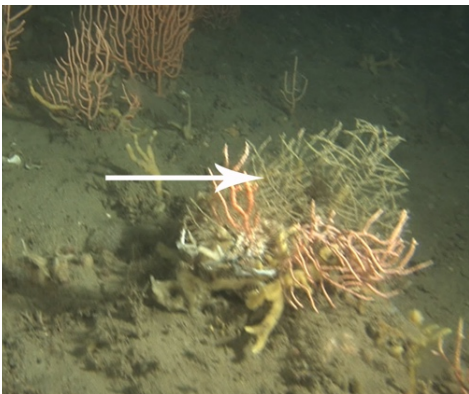
Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Octocorallia
 Order: Pennatulacea
 Family: Pennatulidae

***Sagartia elegans* (Dalyell, 1848)**



Phylum: Cnidaria
 Class: Anthozoa
 Subclass: Hexacorallia
 Order: Actiniaria
 Suborder: Enthemonae
 Superfamily: Metridioidea
 Family: Sagartiidae

***Sertularella gayi* (Lamouroux, 1821)**



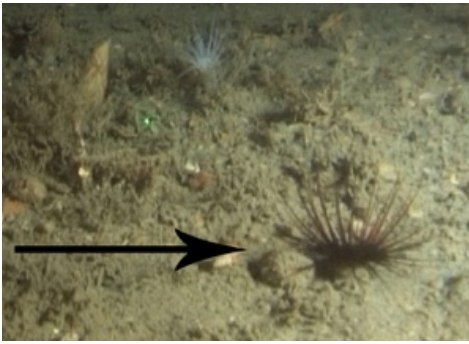
Phylum: Cnidaria
 Class: Hydrozoa
 Subclass: Hydroidolina
 Order: Leptothecata
 Superfamily: Sertularioidea
 Family: Sertulariellidae

Unidentified Anthozoa sp.1



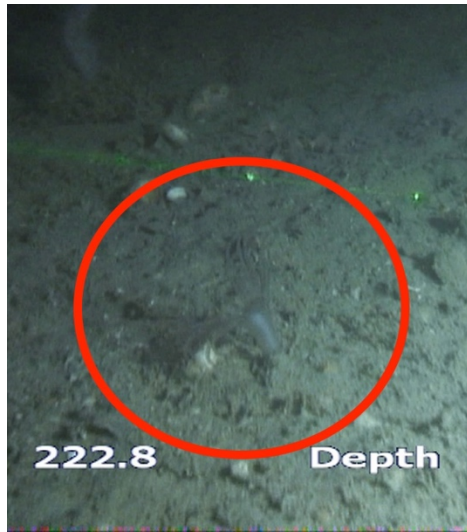
Phylum: Cnidaria
 Class: Anthozoa

Unidentified Anthozoa sp.2



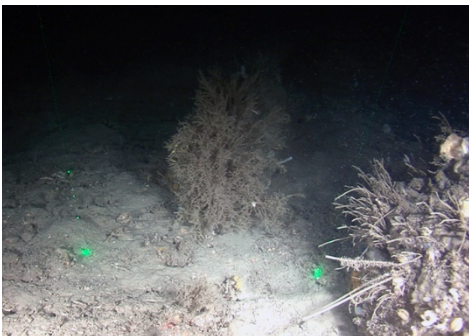
Phylum: Cnidaria
Class: Anthozoa

Unidentified Anthozoa sp.3



Phylum: Cnidaria
Class: Anthozoa

Unidentified Hydrozoa sp.1



Phylum: Cnidaria
Class: Hydrozoa

Unidentified Hydrozoa sp.2



Phylum: Cnidaria
Class: Hydrozoa

***Veretillum cynomorium* (Pallas, 1766)**



Phylum: Cnidaria
Class: Anthozoa
Subclass: Octocorallia
Order: Pennatulacea
Family: Veretillidae

***Virgularia mirabilis* (Müller, 1776)**



Phylum: Cnidaria
Class: Anthozoa
Subclass: Octocorallia
Order: Pennatulacea
Family: Virgulariidae

Phylum Bryozoa

***Chartella tenella* (Hincks, 1887) / *Hincksinoflustra octodon* (Busk, 1852)**



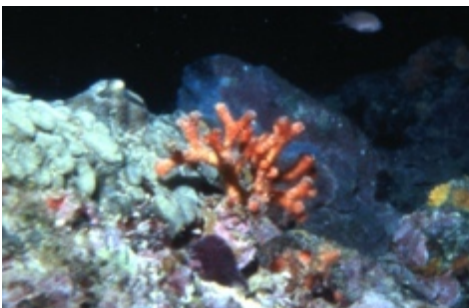
Phylum: Bryozoa
Class: Gymnolaemata
Order: Cheilostomatida
Suborder: Flustrina
Superfamily: Flustroidea
Family: Flustridae

***Fron dipora verrucosa* (Lamouroux, 1821)**



Phylum: Bryozoa
Class: Stenolaemata
Order: Cyclostomatida
Suborder: Fasciculina
Family: Fron diporidae

***Myriapora truncata* (Pallas, 1766)**



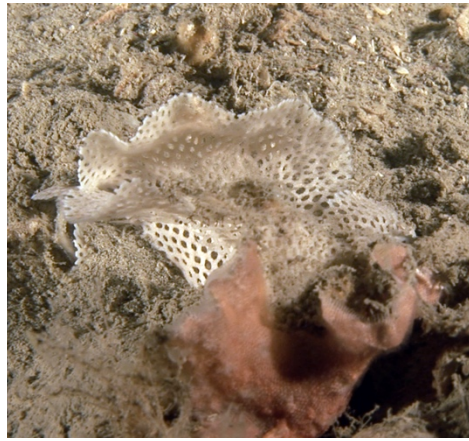
Phylum: Bryozoa
Class: Gymnolaemata
Order: Cheilostomatida
Suborder: Flustrina
Superfamily: Schizoporelloidea
Family: Myriaporidae

***Omalosecosa ramulosa* (Linnaeus, 1767)**



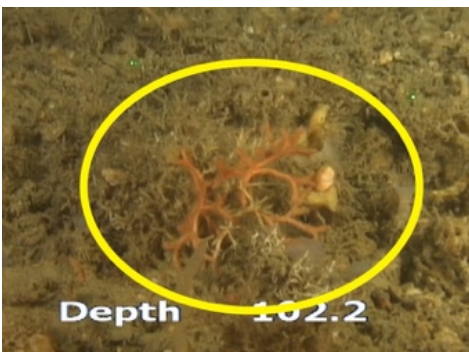
Phylum: Bryozoa
Class: Gymnolaemata
Order: Cheilostomatida
Suborder: Flustrina
Superfamily: Celleporoidea
Family: Celleporidae

***Reteporella* sp.**



Phylum: Bryozoa
Class: Gymnolaemata
Order: Cheilostomatida
Suborder: Flustrina
Superfamily: Celleporoidea
Family: Phidoloporidae

***Smittina cervicornis* (Pallas, 1766) (could be misidentified for *Adeonella calveti* Canu & Bassler, 1930 in the video images)**



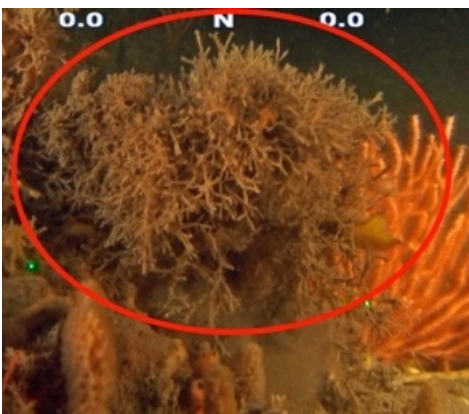
Phylum: Bryozoa
Class: Gymnolaemata
Order: Cheilostomatida
Suborder: Flustrina
Superfamily: Superfamily
Family: Smittinidae

***Turbicellepora avicularis* (Hincks, 1860)**



Phylum: Bryozoa
Class: Gymnolaemata
Order: Cheilostomatida
Suborder: Flustrina
Superfamily: Celleporoidea
Family: Celleporidae

Unidentified Bryozoa sp.1



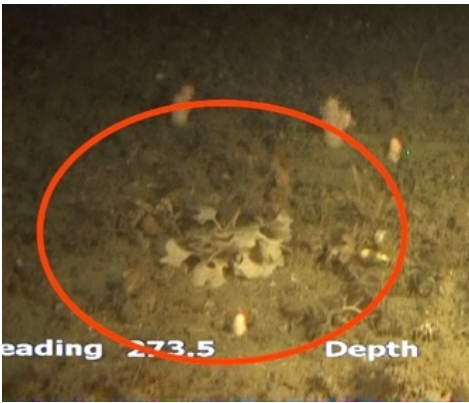
Phylum: Bryozoa

Unidentified Bryozoa sp.2



Phylum: Bryozoa

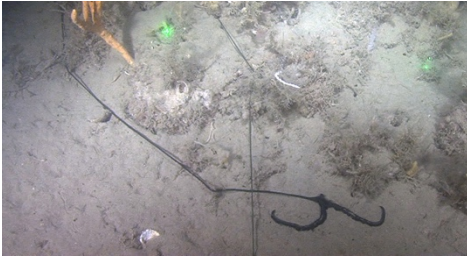
Unidentified Bryozoa sp.3



Phylum: Bryozoa

Phylum Annelida

***Bonellia viridis* Rolando, 1822**



Phylum: Annelida
Class: Polychaeta
Subclass: Echiura
Order: Echiuroidea
Suborder: Bonelliida
Family: Bonelliidae

***Aphrodita aculeata* Linnaeus, 1758**



Phylum: Annelida
Class: Polychaeta
Subclass: Errantia
Order: Phyllodocida
Suborder: Aphroditiformia
Family: Aphroditidae

***Lanice conchilega* (Pallas, 1766)**



Phylum: Annelida
Class: Polychaeta
Subclass: Sedentaria
Infraclass: Canalipalpata
Order: Terebellida
Suborder: Terebelliformia
Family: Terebellidae

***Lanicides* sp.**



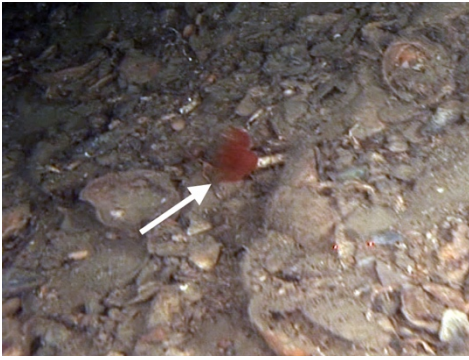
Phylum: Annelida
Class: Polychaeta
Subclass: Sedentaria
Infraclass: Canalipalpata
Order: Terebellida
Suborder: Terebelliformia
Family: Terebellidae

***Myxicola infundibulum* (Montagu, 1808)**



Phylum: Annelida
Class: Polychaeta
Subclass: Sedentaria
Infraclass: Canalipalpata
Order: Sabellida
Family: Sabellidae

***Protula (Protula) tubularia* (Montagu, 1803)**



Phylum: Annelida
Class: Polychaeta
Subclass: Sedentaria
Infraclass: Canalipalpata
Order: Sabellida
Family: Serpulidae

***Sabella pavonina* Savigny, 1822**



Phylum: Annelida
Class: Polychaeta
Subclass: Sedentaria
Infraclass: Canalipalpata
Order: Sabellida
Family: Sabellidae

***Salmacina dysteri* (Huxley, 1855)**



Phylum: Annelida
Class: Polychaeta
Subclass: Sedentaria
Infraclass: Canalipalpata
Order: Sabellida
Family: Serpulidae

Unidentified Polychaeta sp.1



Phylum: Annelida
Class: Polychaeta

Unidentified Polychaeta sp.2



Phylum: Annelida
Class: Polychaeta

Unidentified Sabellidae sp.1



Phylum: Annelida
Class: Polychaeta
Subclass: Sedentaria
Infraclass: Canalipalpata
Order: Sabellida
Family: Sabellidae

Unidentified Sabellidae sp.2



Phylum: Annelida
Class: Polychaeta
Subclass: Sedentaria
Infraclass: Canalipalpata
Order: Sabellida
Family: Sabellidae

Phylum Mollusca

***Calliostoma zizyphinum* (Linnaeus, 1758)**



Phylum: Mollusca
 Class: Gastropoda
 Subclass: Vetigastropoda
 Order: Trochida
 Superfamily: Trochoidea
 Family: Calliostomatidae

***Chlamys* sp.**



Phylum: Arthropoda
 Subphylum: Crustacea
 Superclass: Multicrustacea
 Class: Hexanauplia
 Subclass: Copepoda
 Superorder: Podoplea
 Order: Siphonostomatoidea
 Family: Pandaridae

***Felimare* sp.**



Phylum: Mollusca
 Class: Gastropoda
 Subclass: Heterobranchia
 Superorder: Nudipleura
 Order: Nudibranchia
 Superfamily: Chromodoridoidea
 Family: Chromodorididae

***Neopycnodonte* sp.**



Phylum: Mollusca
 Class: Bivalvia
 Subclass: Autobranchia
 Infraclass: Pteriomorpha
 Order: Ostreida
 Superfamily: Ostreoidea
 Family: Gryphaeidae

***Pteria hirundo* (Linnaeus, 1758)**



Phylum: Mollusca
 Class: Bivalvia
 Subclass: Autobranchia
 Infraclass: Pteriomorpha
 Order: Ostreida
 Superfamily: Pterioidea
 Family: Pteriidae

Unidentified Bivalvia sp.1



Phylum: Mollusca
Class: Bivalvia

Unidentified Bivalvia sp.2



Phylum: Mollusca
Class: Bivalvia

Unidentified Gastropoda sp.1



Phylum: Mollusca
Class: Gastropoda

Unidentified Gastropoda sp.2



Phylum: Mollusca
Class: Gastropoda

Unidentified Gastropoda sp.3



Phylum: Mollusca
Class: Gastropoda

Phylum Brachiopoda

Unidentified Brachiopoda sp.



Phylum: Brachiopoda

Phylum Arthropoda

***Galathea strigosa* (Linnaeus, 1761)**



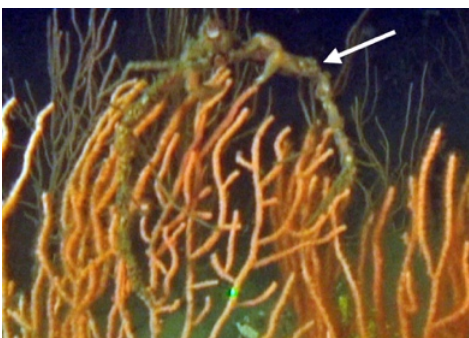
Phylum: Arthropoda
 Subphylum: Crustacea
 Class: Malacostraca
 Subclass: Eumalacostraca
 Superorder: Eucarida
 Order: Decapoda
 Suborder: Pleocyemata
 Infraorder: Anomura
 Superfamily: Galatheoidea
 Family: Galatheidae

***Dardanus arrossor* Herbst, 1796)**



Phylum: Arthropoda
 Subphylum: Crustacea
 Class: Malacostraca
 Subclass: Eumalacostraca
 Superorder: Eucarida
 Order: Decapoda
 Suborder: Pleocyemata
 Infraorder: Anomura
 Superfamily: Paguroidea
 Family: Diogenidae

***Inachus* sp.**



Phylum: Arthropoda
 Subphylum: Crustacea
 Class: Malacostraca
 Subclass: Eumalacostraca
 Superorder: Eucarida
 Order: Decapoda
 Suborder: Pleocyemata
 Infraorder: Brachyura
 Superfamily: Majoidea
 Family: Inachidae

***Munida intermedia* A. Milne-Edwards & Bouvier, 1899**



Phylum: Arthropoda
 Subphylum: Crustacea
 Class: Malacostraca
 Subclass: Eumalacostraca
 Superorder: Eucarida
 Order: Decapoda
 Suborder: Pleocyemata
 Infraorder: Anomura
 Superfamily: Galatheoidea
 Family: Munididae

***Munida rugosa* (Fabricius, 1775)**



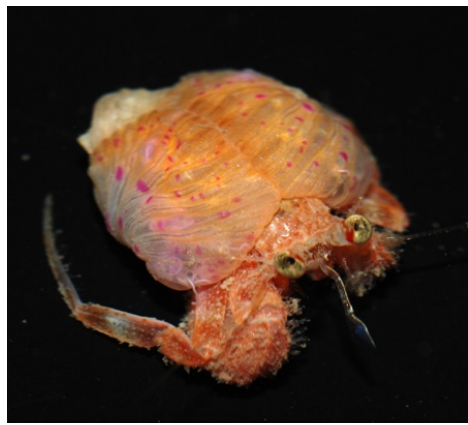
Phylum: Arthropoda
Subphylum: Crustacea
Class: Malacostraca
Subclass: Eumalacostraca
Superorder: Eucarida
Order: Decapoda
Suborder: Pleocyemata
Infraorder: Anomura
Superfamily: Galatheoidea
Family: Munididae

***Nephrops norvegicus* (Linnaeus, 1758)**



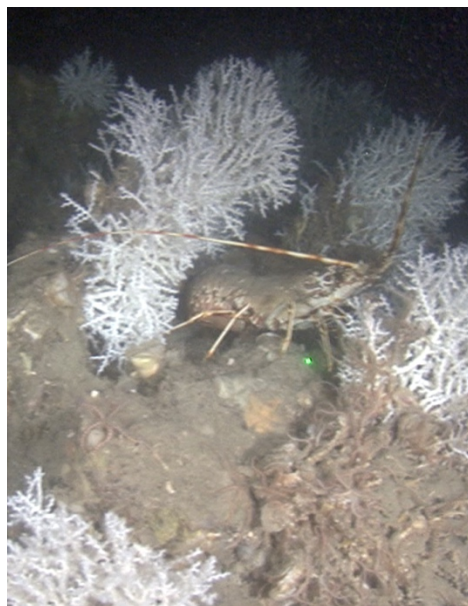
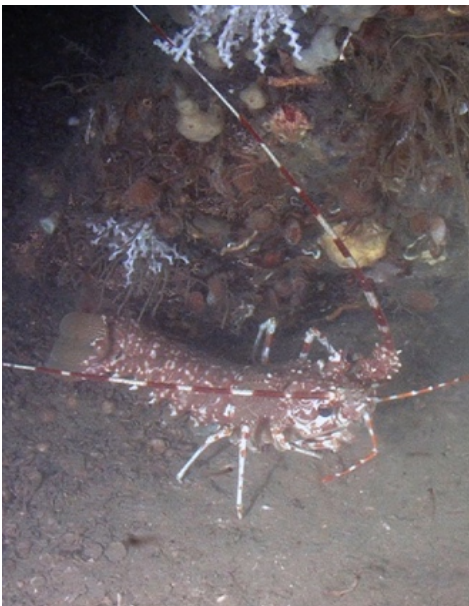
Phylum: Arthropoda
Subphylum: Crustacea
Class: Malacostraca
Subclass: Eumalacostraca
Superorder: Eucarida
Order: Decapoda
Suborder: Pleocyemata
Infraorder: Astacidea
Superfamily: Nephropoidea
Family: Nephropidae

***Pagurus prideauxi* Leach, 1815 and its symbiotic sea anemone *Adamsia palliata* (Fabricius, 1779)**



Phylum: Arthropoda
Subphylum: Crustacea
Class: Malacostraca
Subclass: Eumalacostraca
Superorder: Eucarida
Order: Decapoda
Suborder: Pleocyemata
Infraorder: Anomura
Superfamily: Paguroidea
Family: Paguridae

***Palinurus* sp.**



Phylum: Arthropoda
Subphylum: Crustacea
Class: Malacostraca
Subclass: Eumalacostraca
Superorder: Eucarida
Order: Decapoda
Suborder: Pleocyemata
Infraorder: Achelata
Family: Palinuridae

***Paromola cuvieri* (Risso, 1816)**



Phylum: Arthropoda
Subphylum: Crustacea
Class: Malacostraca
Subclass: Eumalacostraca
Superorder: Eucarida
Order: Decapoda
Suborder: Pleocyemata
Infraorder: Brachyura
Superfamily: Homoloidea
Family: Homolidae

Unidentified Decapoda sp.1



Phylum: Arthropoda
Subphylum: Crustacea
Superclass: Multicrustacea
Class: Malacostraca
Subclass: Eumalacostraca
Superorder: Eucarida
Order: Decapoda

Unidentified Decapoda sp.2



Phylum: Arthropoda
Subphylum: Crustacea
Class: Malacostraca
Subclass: Eumalacostraca
Superorder: Eucarida
Order: Decapoda

Unidentified Decapoda sp.3



Phylum: Arthropoda
Subphylum: Crustacea
Class: Malacostraca
Subclass: Eumalacostraca
Superorder: Eucarida
Order: Decapoda

Phylum Echinodermata

***Anseropoda placenta* (Pennant, 1777)**



Phylum: Echinodermata
 Subphylum: Asterozoa
 Class: Asteroidea
 Superorder: Valvatacea
 Order: Valvatida
 Family: Asterinidae

***Antedon mediterranea* (Lamarck, 1816)**



Phylum: Echinodermata
 Subphylum: Crinozoa
 Class: Crinoidea
 Subclass: Articulata
 Order: Comatulida
 Superfamily: Antedonoidea
 Family: Antedonidae
 Subfamily: Antedoninae

***Astropecten* sp.**



Phylum: Echinodermata
 Subphylum: Asterozoa
 Class: Asteroidea
 Superorder: Valvatacea
 Order: Paxillosida
 Family: Astropectinidae

cf. *Cidaris cidaris* Linnaeus, 1758



Phylum: Echinodermata
 Subphylum: Echinozoa
 Class: Echinoidea
 Subclass: Cidaroida
 Order: Cidaroida
 Superfamily: Cidaroidae
 Family: Cidaridae
 Subfamily: Cidarinae

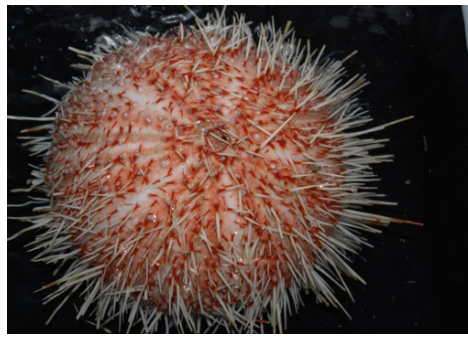
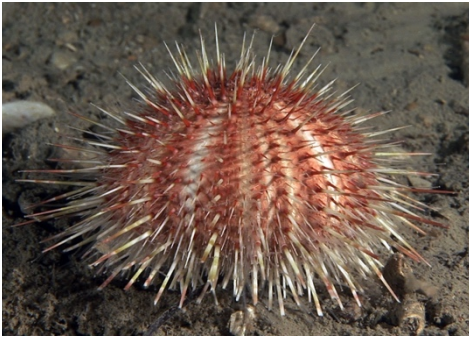
***Echinaster sepositus* (Retzius, 1783)**



Phylum: Echinodermata
 Subphylum: Asterozoa
 Class: Asteroidea
 Superorder: Spinulosacea
 Order: Spinulosida
 Family: Echinasteridae

Heading 345.1 Depth 126.6

***Echinus acutus* Lamarck, 1816**



Phylum: Echinodermata
 Subphylum: Echinozoa
 Class: Echinoidea
 Suclass: Euechinoidea
 Infraclass: Carinacea
 Superorder: Echinacea
 Order: Camarodonta
 Infraorder: Echinidea
 Family: Echinidae

***Echinus melo* Lamarck, 1816**



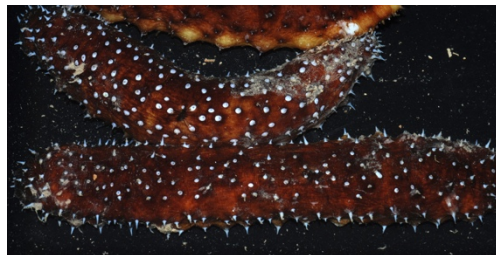
Phylum: Echinodermata
 Subphylum: Echinozoa
 Class: Echinoidea
 Suclass: Euechinoidea
 Infraclass: Carinacea
 Superorder: Echinacea
 Order: Camarodonta
 Infraorder: Echinidea
 Family: Echinidae

***Hacelia attenuata* Gray, 1840**



Phylum: Echinodermata
 Subphylum: Asterozoa
 Class: Asteroidea
 Superorder: Valvatacea
 Order: Valvatida
 Family: Ophidiasteridae

***Holothuria* sp.**



Phylum: Echinodermata
 Subphylum: Echinozoa
 Class: Holothuroidea

***Leptometra phalangium* (Müller, 1841)**



Phylum: Echinodermata
 Subphylum: Crinozoa
 Class: Crinoidea
 Subclass: Articulata
 Order: Comatulida
 Superfamily: Antedonoidea
 Family: Antedonidae

***Luidia ciliaris* (Philippi, 1837)**



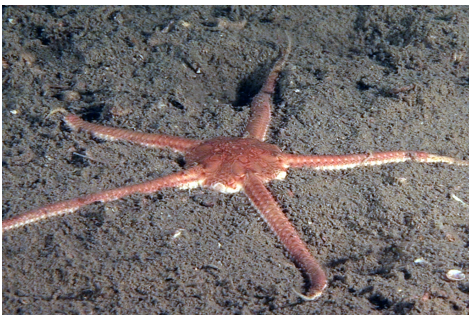
Phylum: Echinodermata
 Subphylum: Asterozoa
 Class: Asteroidea
 Superorder: Valvatacea
 Order: Paxillosida
 Family: Luidiidae

***Ophiothrix fragilis* (Abildgaard in O.F. Müller, 1789)**



Phylum: Echinodermata
 Subphylum: Asterozoa
 Class: Ophiuroidea
 Subclass: Myophiuroidea
 Infraclass: Metophiurida
 Superorder: Ophintegrida
 Order: Amphilepidida
 Suborder: Gnathophiurina
 Superfamily: Ophiactoidea
 Family: Ophiotrichidae

***Ophiura ophiura* (Linnaeus, 1758)**



Phylum: Echinodermata
 Subphylum: Asterozoa
 Class: Ophiuroidea
 Subclass: Myophiuroidea
 Infraclass: Metophiurida
 Superorder: Euryophiurida
 Order: Ophiurida
 Suborder: Ophiurina
 Family: Ophiuridae

***Parastichopus regalis* (Cuvier, 1817)**



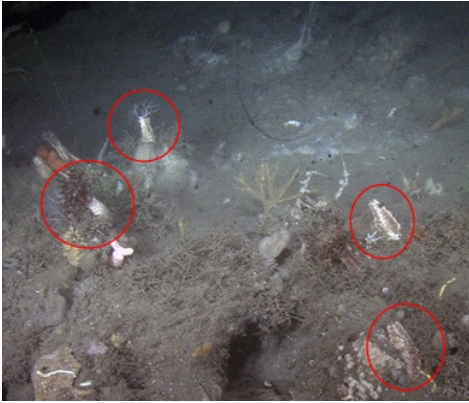
Phylum: Echinodermata
 Subphylum: Echinozoa
 Class: Holothuroidea
 Subclass: Actinopoda
 Order: Synallactida
 Family: Stichopodidae

***Spatangus purpureus* O.F. Müller, 1776**



Phylum: Echinodermata
 Subphylum: Echinozoa
 Class: Echinoidea
 Suclass: Euechinoidea
 Infraclass: Irregularia
 Superorder: Atelostomata
 Order: Spatangoida
 Suborder: Brissidina
 Superfamily: Spatangoidea
 Family: Spatangidae

Unidentified Cucumariidae



Phylum: Echinodermata
Subphylum: Echinozoa
Class: Holothuroidea
Subclass: Actinopoda
Order: Dendrochirotida
Family: Cucumariidae

Unidentified Holothuroidea



Phylum: Echinodermata
Subphylum: Echinozoa
Subclass: Holothuroidea

Unidentified Ophiuroidea



Phylum: Echinodermata
Subphylum: Asterozoa
Class: Ophiuroidea

Phylum Chordata, Subphylum Tunicata

***Ascidia mentula* Müller, 1776**



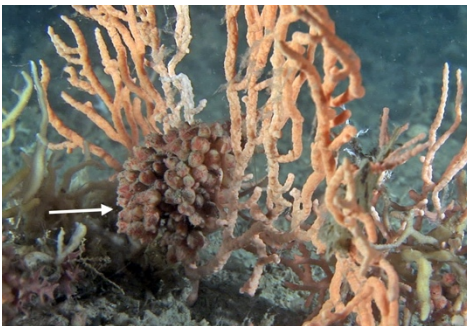
Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea
Order: Phlebobranchia
Family: Ascidiidae

***Didemnum cf. coriaceum* Savigny, 1816**



Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea
Order: Aplousobranchia
Family: Didemnidae

***Distomus variolosus* Gaertner, 1774**



Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea
Order: Stolidobranchia
Family: Styelidae

***Halocynthia papillosa* (Linnaeus, 1767)**



Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea
Order: Stolidobranchia
Family: Pyuridae

***Pycnoclavella* sp.**



Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea
Order: Aplousobranchia
Family: Clavelinidae

Pyuridae / Styelidae indet.



Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea
Order: Stolidobranchia

***Rhopalaea* sp.**



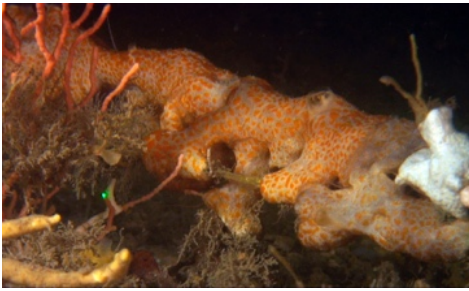
Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea
Order: Aplousobranchia
Family: Diazonidae

Unidentified Ascidiacea sp.1



Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea

Unidentified Ascidiacea sp.2



Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea

Unidentified Ascidiacea sp.3



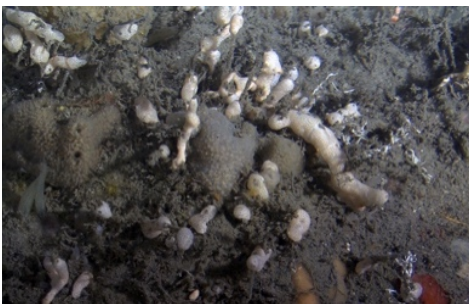
Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea

Unidentified Ascidiacea sp.6



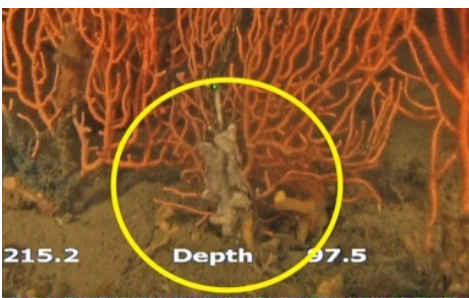
Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea

Unidentified Didemnidae sp.1



Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea
Order: Aplousobranchia
Family: Didemnidae

Unidentified Didemnidae sp.2



Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea
Order: Aplousobranchia
Family: Didemnidae

Unidentified Didemnidae sp.3



Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea
Order: Aplousobranchia
Family: Didemnidae

Unidentified Didemnidae sp.4



Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea
Order: Aplousobranchia
Family: Didemnidae

Unidentified Polyclinidae sp.



Phylum: Chordata
Subphylum: Tunicata
Class: Ascidiacea
Order: Aplousobranchia
Family: Polyclinidae