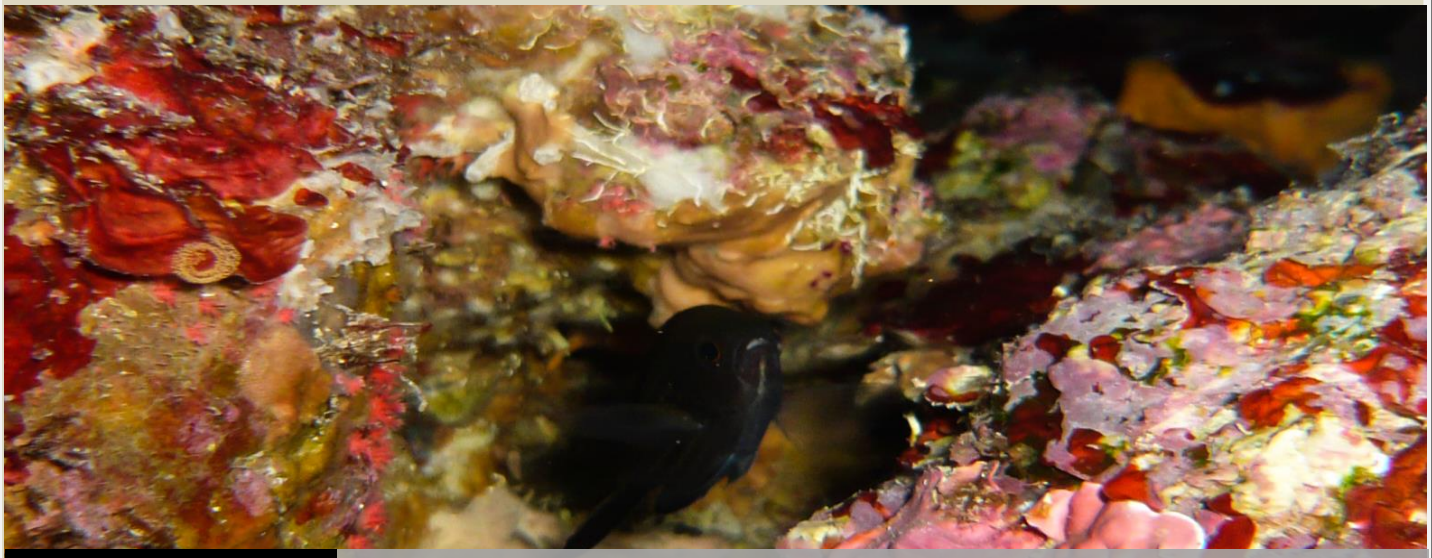
NATIONAL MARINE PARK OF ZAKYNTHOS

IN COLLABORATION WITH

UNIVERSITY OF AEGEAN, DEPT. OF MARINE SCIENCE

HELLENIC CENTRE OF MARINE RESEARCH



3rd Annual Report 2015 - 2016

CORALLIGENOUS SURVEY IN THE NORTH – EAST MEDITERRANEAN

CIGESMED

IN THE FRAMEWORK OF EUROPEAN PROJECT ANR12 SEAS 0001-01 - CIGESMED

ZAKYNTHOS MAY 2016

CORALLIGENOUS SURVEY IN THE NORTH – EAST MEDITERRANEAN

3rd Annual Progress Report

Reporting Period: 2015-2016

Authors: Dimitriadis C., Sini M., Gerovasileiou V., Sourbes L., J. Batjakas & D. Koutsoubas

WORKING GROUP

Name	Affiliation	Specific tasks
Drosos Koutsoubas	NMPZ/ Univ. of the Aegean	Project coordinator for NMPZ
Laurent Sourbes	NMPZ	Report preparation, administrative and communication tasks
Charalampos Dimitriadis	NMPZ	Report preparation, administrative and communication tasks, field work
Vasilis Gerovasileiou	HCMR/NMPZ	Report preparation, communication tasks, field work
Maria Sini	Univ. of the Aegean/ NMPZ	Report preparation, communication tasks, field work
Elpiniki Kali	NMPZ	Report preparation, administrative and communication tasks
Anna Thalassini-Vali	NMPZ	Report preparation, administrative and communication tasks
Vatikiotis Konstantinos	NMPZ	Field work

NATIONAL MARINE PARK OF ZAKYNTHOS
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Front page photos: C. Dimitriadis

1. INTRODUCTION

The current document is the third Annual Progress Report (3rd reporting period) of activities that were undertaken by the National Marine Park of Zakynthos as a subtask in the framework of the European Project CIGESMED according to deliverable requirements of the contract (Ref CNRS: DR12-JE 093 579) signed by NMPZ and CNRS. It includes the tasks and activities carried out from April 2015 until May 2016. The activities of the subtask '*Coralligenous Survey in the North – East Mediterranean*' and their relation to the Work Packages (WP) of CIGESMED Project are presented in Table 1.

Table 1: NMPZ's activities and their relation to CIGESMED Project WPs

NMPZ Activities	Description	Connection to CIGESMED WP's
Activity 1	Coralligenous assessment and monitoring	**WP2** - *Coralligenous assessment and threats in the different basins* **WP3** - *Indicators' development and test*
Activity 2	Management tools	**WP4** - *Innovative monitoring tools* **WP6** - *Data management, mapping and assimilation tools*
Activity 3	Participatory process-Promotion -Public awareness activities	**WP5** - *Citizen science network implementation* **WP7** - *Outreach, dissemination and stakeholder engagement*

2. GENERAL ASSEMBLY OF CIGESMED PROJECT 2015

D. Koutsoubas, C. Dimitriadis, M. Sini and V. Gerovasileiou, members of the NMPZ/University of the Aegean work team, participated in the General Assembly of CIGESMED project which was held in Mitilene, Greece from the 18th to the 24th of May 2015. During the meeting they had the opportunity to discuss with other Project participants as well as to present the results derived from the 2nd reporting period (2nd Annual Report) with respect to Zakynthos study sites and Project objectives (Figure 1). In more details, C. Dimitriadis presented the progress of the tasks that were assigned to the NMPZ during the second year of CIGEMED project duration. These tasks included: i) Field surveys that have been conducted (Characterization and mapping of the selected sites) following the requirements of the proposed CIGESMED Protocols «Profiles and stands cartography», ii) Collection of samples of the bryozoan *Myriapora truncata* and encrusting calcareous algae (whilst targeting samples of *Lithophyllum* spp.) for genetic analyses, iii) Preliminary assessment of community composition and structural patterns.

The members of the NMPZ/University of the Aegean work team exchanged ideas and technical knowledge regarding field work (e.g. study sites, protocols), preliminary results (e.g. species lists), data analyses, citizen science, and potential post-CIGESMED initiatives.

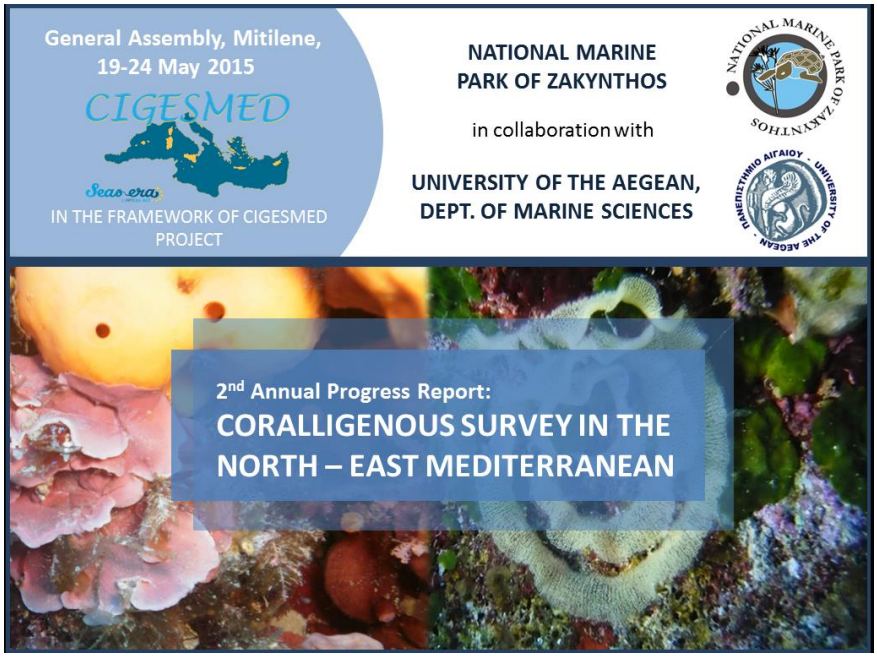


Figure 1: Presentation of NMPZ/University of the Aegean work team progress with respect to the 2nd reporting period of CIGESMED project

3. WORKING MEETING IN MARSEIILE, DECEMBER 2015

D. Koutsoubas, M. Sini and V. Gerovasileiou participated to the activities of the working meeting which was held in Marseille at December 2015. During the meeting they were involved in the designing and planning of publications and promotional actions with respect to CIGESMED project results and outputs. At the same time, they were also involved in the discussion of how to expand and enlarge CIGESMED project activities to the next call of proposals.

4. INTERNAL MEETING OF GREEK PARNTERS 2015

During the 28th and 30th of December 2015, NMPZ organized an internal project meeting (held in Thessaloniki, Greece), between NMPZ, University of Aegean and HCMR work team members. During this meeting D. Koutsoubas, C. Dimitriadis, V. Gerovasileiou and M. Sini discussed several issues regarding the progress of the various CIGESMED work packages, and set up a time-schedule including future tasks that need to be realized at Zakynthos MPA.

5. PARTICIPATION IN SCIENTIFIC SYMPOSIA

V. Gerovasileiou member of the NMPZ/University of the Aegean/HCMR working group along with other members of the CIGESMED Working Group, presented part of the CIGESMED results to the 13th International congress on the zoogeography and ecology of Greece and adjacent regions (ICZEGAR) held in Crete from 7 to 11 October 2015, with the following Poster contribution:

- Gerovasileiou V., Dailianis T., Panteri E., Gatti G., Issaris Y., Sini M., Salomidi M., Dimitriadis C., Michalakis N., Doğan A., Thierry de Ville d'Avray L., David R., Çinar M.E., Koutsoubas D., Arvanitidis C., Féral J-P. Establishing a citizen science initiative for the mapping and monitoring of coralligenous assemblages in the Mediterranean Sea. Proceedings of 13th ICZEGAR conference, 7-11 October, Herakelion, Greece, 119p.

The members of the NMPZ/University of the Aegean/HCMR working group along with other members of the CIGESMED working group participated in the publication regarding Citizen Science activities of CIGESMED project which was presented as a the poster presentation at the 1st ECSA Conference 2016 *'Citizen Science – Innovation in Open Science, Society and Policy'* held in Berlin from 19 to 21 May 2016:

- Gatti G., Dimitriadis C., Gerovasileiou V., Dailianis T., Panteri E., Issaris Y., Sini M., Salomidi M., Michalakis N., Doğan A., Thierry de Ville d'Avray L., David R., Çinar M.E., Koutsoubas D., Arvanitidis C., Féral J-P. 2016. Citizen Science for CIGESMED, or how to engage divers in marine ecological monitoring: first steps of a new project. Proceedings of the First International ECSA Conference, 19–21 May, Berlin, Germany, 63p.

During the International Symposium 'Marine Protected Areas in Greece and the Mediterranean: Designing for the Future by Applying Lessons Learnt from the Past' which was organized by the Management Agency of the National Marine Park of Zakynthos and held in Zakynthos from 4 to 6 December 2015 the member of CIGESMED working group C. Arvanitidis presented orally the activities of CIGESMED project. At the same time, assessment of coralligenous habitat in the marine protected area of NMPZ was also presented by the members of NMPZ/University of the Aegean/HCMR working group under the following CIGESMED Poster contribution:

- Dailianis T., Sini M., Gerovasileiou V., Dimitriadis C., Sapouna A., Vatikiotis K., Katsoupis C., Çinar M.E., Féral J-P., Koutsoubas D., Arvanitidis C. 2015. Ecological assessment of coralligenous assemblages in the National Marine Park of Zakynthos (Ionian Sea, Greece). Proceedings of the International Symposium 'Marine Protected Areas in Greece and the Mediterranean: Designing for the Future by Applying Lessons Learnt from the Past', Zakynthos, Greece, 4-6 October, 32p.

During the Symposia members of the NMPZ/University of the Aegean/HCMR working group discussed with other CIGESMED partners from CNRS (France) and Ege University (Turkey) about the ongoing progress of different work packages, and potential post-CIGESMED initiatives.

6. DESSIMINATION

A new promotional trifold leaflet, was created by the members of NMPZ/University of the Aegean/HCMR working group regarding the activities of CIGESMED project that were carried out at the Marine Protected Area of NMPZ. The original template of the leaflet was delivered to CNRS in pdf format of high resolution for further use and exploitation (WP6).

Further dissemination/promotional/outreach actions included the communication of CIGESMED activities in the MEDPAN Network as well as the engagement of local stakeholders (diving clubs, dedicated divers) to Citizen Science activities of the project.

7. FIELD WORK

Following the previous surveys (2014) in the NMPZ for the exploration of coralligenous communities (see 2nd progress report for the candidate sites), NMPZ/University of the Aegean/HCMR working group established the final research site for the study and monitoring of coralligenous habitat in the Marine Protected Area of NMPZ during June of 2015. All other candidate sites that were surveyed during 2014 were excluded from further investigation, due to interrupted or rare presence of coralligenous formations. The research site is located at Lakka/Mavros Cavos area which is located at the SW part of Zakynthos Island, close to the westernmost boundaries of the NMPZ protected area and is characterized by relatively cool water temperatures, possibly due to direct exposure to the open Ionian Sea and local wind-driven up-welling. The location can be characterized as generally pristine, yet it should be noted that it is included among the most popular recreational diving areas of the island, and is regularly visited by groups of divers every day during the summer period (May to October) in an organized way by the local Diving Clubs. The latter means that dive masters and instructors usually escort groups of divers, while during pre-dive briefing sessions they inform divers about the protection measures that are active in the Protected Area of the NMPZ, the fragility of marine organisms and the importance of their habitats (established after close collaboration with the scientific personnel of the NMPZ Management Agency). Extensive vertical rocky walls with crevices, overhangs and numerous submerged caves characterize the topography of the specific location. Rocky cliffs starting from 100-150 m above sea level drop vertically to depths down to 30-40 m. These geomorphological features account for the increased shadowy conditions observed locally over the greatest part of the day.
Two research stations were established and surveyed within the research site of NMPZ (Table 1). Their topographic features are presented in table 1. The conducted surveys at these stations aimed to:

- Identify coralligenous communities structure
- Identify the environmental conditions
- Record and evaluate the threats

For the identification of the environmental conditions of the surveyed stations, 6 HOBO Water Temperature Pro v2 data loggers (Figure 3) were installed in order to set up a long-term benthic temperature sampling station (Figure 4). The loggers were installed at fixed depths (0, 5, 10, 20, 30, 40m). Loggers' data are anticipated to contribute to the monitoring and the better understanding of the local environmental conditions.

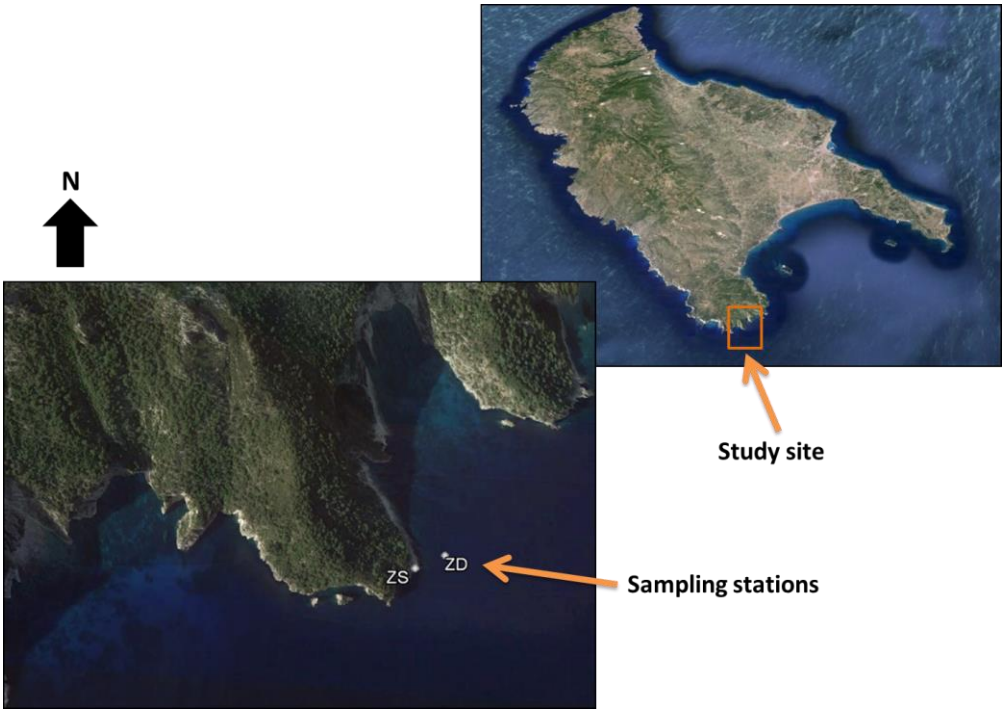


Figure 2: Map of Zakynthos showing the surveyed site and the two sites investigated (ZS and ZD)

Table 2. Topographic features of the surveyed sampling stations

Station	*Transect*	*Coordinates*		*Date*	*Depth range*	*Orientation*	*Inclination*	*Rugosity*
		Latitude	Longitude					
ZS	**ZSA**	37.647239°	20.845430°	5/6/2015	15-17	W	Vertical	Large
ZS	**ZSB**	37.647239°	20.845430°	5/6/2015	15-17	S, SW	Vertical	Medium
ZS	**ZSC**	37.647239°	20.845430°	5/6/2015	15-17	NE	Vertical	Large
ZD	**ZDA**	37.647548°	20.846123°	6/6/2015	38-39	NW	Inclined / Subvertical	Medium-Large
ZD	**ZDB**	37.647548°	20.846123°	6/6/2015	38-39	W	Vertical	Medium-Large
ZD	**ZDC**	37.647548°	20.846123°	6/6/2015	38-39	SW	Vertical	Medium-Large

Figure 3: Onset's Waterproof Data Logger system which was installed at Zakynthos sampling sites for a long –term temperature monitoring.

Figure 4: Installed data loggers at the sampling site of NMPZ

All the standard protocols and techniques of CIGESMED project were used during the surveys as they are thoroughly described at the 2nd progress report. The collected data were processed, inserted to a data base and then sent to the leader of CIGESMED WP2 for further analysis.

Moreover, additional samples of specimens of coralligenous species that are common across the Mediterranean such as *Mesophyllum sp* and *Myriapora truncata*, were also collected from the study area during the surveys. These samples were sent to the laboratory of IMBE for molecular analysis (WP4).

8. SPECIES RECORDED IN THE STUDY SITE

A total of 95 taxa belonging to 14 major taxonomic groups (Table 3) were recorded at the selected sites during the fieldwork, mostly consisting of Porifera (28) and Echinodermata (9) (Figure 5). The highest number of taxa (75) was recorded at the shallower station (ZS) while at the deep station (ZD) were recorded 68 taxa.

At the ZS station, most dominant taxa were Porifera (19) and Echinodermata (9), while at the ZD station were Porifera (22) and Rhodophyta (8) (Figure 5). More specific, the most abundant sponges at the ZS stations were *Agelas oroides* and *Crambe crambe*. Echinoderms while they had a "relative" high number of species (9) at the ZS station, their abundance was rather low. At the ZD station most abundant sponges were *Agelas oroides*, *Axinella* spp., *Chondrosia reniformis*, *Clionia viridis*, *Dysidea fragilis*, *Haliclona (Halichoclona) fulva*, *Penares* sp., *Pleraplyssila spinifera* and *Spirastrella cuncantrix* and from the rhodophytes were *Lithophyllum* sp., *Mesophyllum* sp., *Peyssonnelia rubra*, *Peyssonnelia squamaria*, and *Peyssonnelia* spp., respectively (Table 3).

Table 3. The list of coralligenous species and their relative abundance at coralligenous stations of Zakynthos [1 = low (rare or isolated individuals), 10 = average (dispersed population), 100 = abundant (abundant and dense population)] *Alien species.

Species/Stations	*ZS*	*ZD*
ALGAE		
Encrusting calcareous algae	100	
Red algae unid.1		100
Turf-forming algae	100	10
CHLOROPHYTA		
Cladophora pellucida (Hudson) Kützing, 1843	10	
Codium bursa (Olivi) C.Agardh, 1817	1	
Codium effusum (Rafinesque) Delle Chiaje, 1829		10
Palmophyllum crassum (Naccari) Rabenhorst, 1868	100	100
PHAEOPHYCEAE		
Dictyota dichotoma (Hudson) J.V.Lamouroux, 1809		1
Halopteris spp.	10	1
RHODOPHYTA		
Amphiroa cryptarthrodia Zanardini, 1844		10
Lithophyllum sp.		100
Mesophyllum sp.	100	100
Neogoniolithon mamillosum (Hauck) Setchell & L.R.Mason, 1943		10

Peyssonnelia rosa-marina Boudouresque & Denizot, 1973	10	10
Peyssonnelia rubra (Greville) J.Agardh, 1851	100	100
Peyssonnelia squamaria (S.G.Gmelin) Decaisne, 1842	10	100
Peyssonnelia spp.	100	100
FORAMINIFERA		
Miniacina miniacea (Pallas, 1766)	100	10
PORIFERA		
Agelas oroides (Schmidt, 1864)	100	100
Axinella damicornis (Esper, 1794)	1	10
Axinella spp.	1	100
Cacospongia mollior Schmidt, 1862	10	10
Chondrosia reniformis Nardo, 1847	1	100
Crambe crambe (Schmidt, 1862)	100	
Cliona celata Grant, 1826	10	
Cliona schmidti (Ridley, 1881)	10	10
Cliona viridis (Schmidt, 1862)	10	100
Dendroxea lenis (Topsent, 1892)	10	
Dictyonella incisa (Schmidt, 1880)		1
Dysidea fragilis (Montagu, 1814)		100
Fasciospongia cavernosa (Schmidt, 1862)		1
Haliclona (Halichoclona) fulva (Topsent, 1893)	1	100
Haliclona (*Soestella*) *mucosa* (Griessinger, 1971)	1	10
Haliclona sp.		1
Hemimycale columella (Bowerbank, 1874)		10
Ircinia sp.	1	
Merlia sp.	10	
Oscarella imperialis Muricy, Boury-Esnault, Bézac & Vacelet, 1996		10
Penares sp.	1	100
Petrosia (*Petrosia*) *ficiformis* (Poiret, 1789)		1
Phorbas tenacior (Topsent, 1925)	1	10
Pleraplysilla spinifera (Schulze, 1879)	1	100
Terpios gelatinosa (Bowerbank, 1866)	10	
Sarcotragus foetidus Schmidt, 1862	1	10
Sarcotragus spinosulus Schmidt, 1862		1
Spirastrella cunctatrix Schmidt, 1868		100
CNIDARIA		
Caryophyllia (*Caryophyllia*) *inornata* (Duncan, 1878)	10	10
Leptopsammia pruvoti Lacaze-Duthiers, 1897	1	100
Madracis pharensis (Heller, 1868)	10	10
Polycyathus muellerae (Abel, 1959)	1	
Hydrozoa (spp.)	1	
Scleractinia (spp.)	10	10
POLYCHAETA		
Hermodice carunculata (Pallas, 1766)	10	10

Bispira volutacornis (Montagu, 1804)	1	
Myxicola infundibulum (Montagu, 1808)	10	1
Sabella spallanzanii (Gmelin, 1791)	1	
Serpulidae (sp.)	10	10
Salmacina spp. / *Filograna* spp.	1	1
Protula tubularia (Montagu, 1803)	10	
CRUSTACEA		
Dardanus calidus (Risso, 1827)	1	
Scyllarides latus (Latreille, 1803)	1	
MOLLUSCA		
Gastropoda		
Flabellina affinis (Gmelin, 1791)	1	
Thylacodes arenarius (Linnaeus, 1758)	1	1
Peltodoris atromaculata Bergh, 1880		1
Bivalvia		
Lithophaga lithophaga (Linnaeus, 1758)	100	
Rocellaria dubia (Pennant, 1777)	10	10
BRYOZOA		
Adeonella spp.	100	100
Beania magellanica (Busk, 1852)		10
Cellepora sp.	1	
Myriapora truncata (Pallas, 1766)	100	100
Reptadeonella violacea (Johnston, 1847)	100	
Rhynchozoon neapolitanum Gautier, 1962	10	100
Schizomavella (*Schizomavella*) *mamillata* (Hincks, 1880)	100	100
Encrusting bryozoa	100	
ECHINODERMATA		
Arbacia lixula (Linnaeus, 1758)	1	1
Centrostephanus longispinus (Philippi, 1845)	1	1
Echinaster (*Echinaster*) *sepositus* (Retzius, 1783)	1	
Hacelia attenuata Gray, 1840	1	
Holothuria (*Panningothuria*) *forskali* Delle Chiaje, 1823	1	
Holothuria (*Platyperona*) *sanctori* Delle Chiaje, 1823	1	
Ophidiaster ophidianus (Lamarck, 1816)	1	1
Paracentrotus lividus (Lamarck, 1816)	1	1
Sphaerechinus granularis (de Lamarck, 1816)	1	1
TUNICATA		
Didemnum commune (Della Valle, 1877)		100
Didemnum maculosum (Milne Edwards, 1841)	1	100
Didemnum sp.	1	
Halocynthia papillosa (Linnaeus, 1767)	10	1
PISCES		
Anthias anthias (Linnaeus, 1758)	1	10
Apogon imberbis (Linnaeus, 1758)	10	

Chromis chromis (Linnaeus, 1758)	100	100
Coris julis (Linnaeus, 1758)	100	100
Diplodus sargus sargus (Linnaeus, 1758)		10
Diplodus vulgaris (Geoffroy Saint-Hilaire, 1817)		10
Scorpaena spp.	100	1
Serranus scriba (Linnaeus, 1758)	1	10

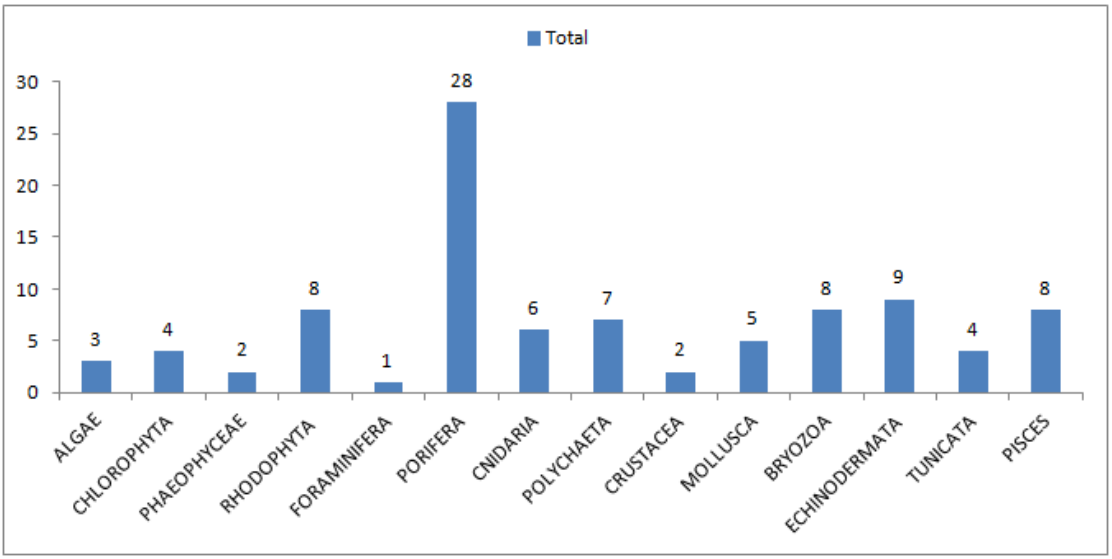


Figure 5. Distribution of total number of species to groups.

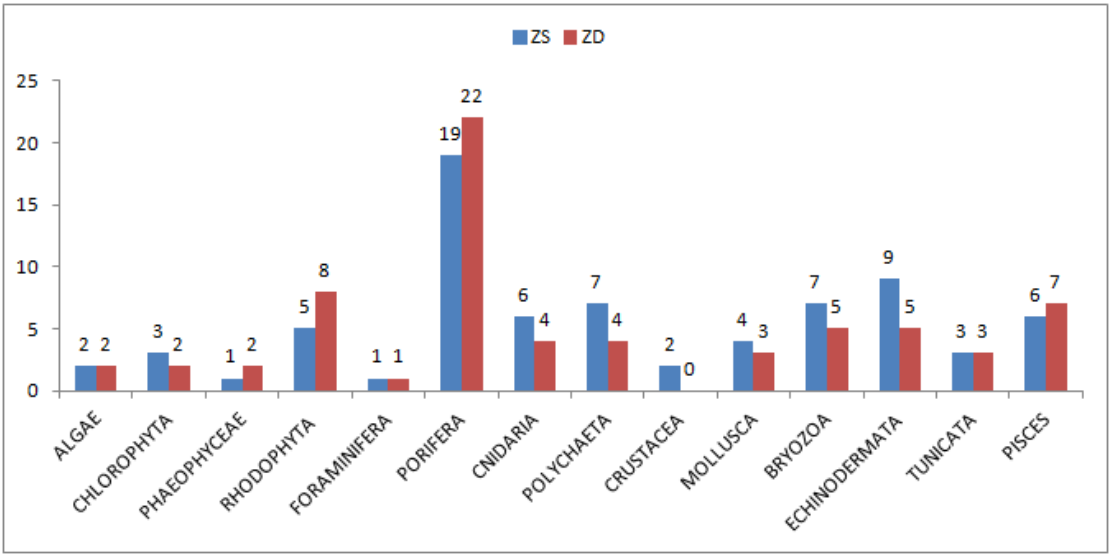


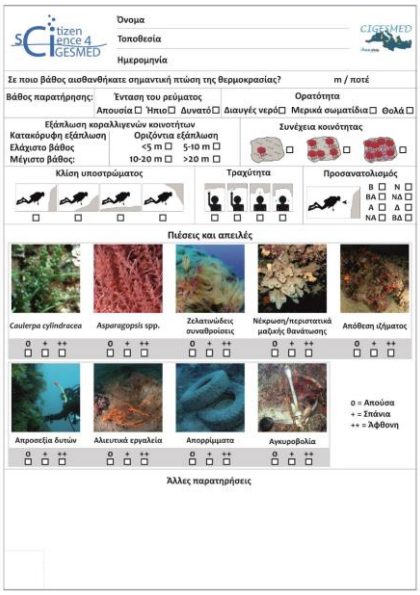
Figure 6. The number of species found in each group and station.

8. CITIZEN SCIENCE ACTIVITIES

The NMPZ/University of Aegean working group was actively involved in the activities performed in the framework of the Citizen Science WP of CIGESMED project (WP5)

(Citizen Science for CIGESMED). The following activities were carried out by the working group of the NMPZ/ University of Aegean:

a) Participation in the compilation and translation in the Greek language of the underwater slates that will be used by the citizen scientists for the study and monitoring of the coralligenous habitat.



b) Participation in the preparation of the practical guidelines (short and long version) documents and translation in the Greek language.

CIGESMED for divers – Citizen Science for CIGESMED

Practical guidelines

An underwater tablet is provided to write down your observations, with a simple pencil. A filling order should be respected: from the top to the bottom and from left to right of the tablet.

No field is mandatory, but is strongly recommended not to forget to mark the depth of the observation.

ESSENTIAL EQUIPMENT: TABLET, SNAP-HOOK, TORCH, DIVING COMPUTER, COMPASS.

OPTIONAL EQUIPMENT: GPS, UNDERWATER CAMERA.

Step by step application of the Protocol:

1. Make sure that pencils are operative (a backup pencil may also come in handy).
2. Note down date and name of the diving site (provide GPS coordinates if possible).
3. During descent, note down **the depth at which you met colder water,** if you noticed it.

At what depth you met colder water?	m / never

4. Once you reach the depth of your choice, choose the area of your observation: it could be a limited surface (not smaller than the width of your opened arms in length and width) or a small itinerary at constant depth. Feel free to do whatever you want!
5. Fill in the tablet, following the order:

   Observation depth: try to carry out the whole observation at a constant depth.

   Current intensity: do you think that there is a strong or weak current? Or no current at all?

   Visibility: does the water is clear, there are some suspended particles or it is turbid?

   Observed vertical extent of the habitat: what was the minimum (**Min depth**) and the maximum depth (**Max depth**) where coralligenous concretions developed? If you cannot physically reach the maximum depth, you can estimate it or you can use your maximal diving depth.

CIGESMED για Δύτες, Πολίτες-Επιστήμονες για το πρόγραμμα παρακολούθησης των κοραλλιγενών οικοτόπων

Τι είναι οι 'κοραλλιγενείς' οικότοποι;

Οι κοραλλιγενείς οικότοποι, αποτελούν ένα ιδιαίτερο υποβρύχιο τοπίο, που απαντά αποκλειστικά στη θάλασσα της Μεσογείου. Αναπτύσσεται πάνω σε σκιερούς βραχώδεις πυθμένες, κυρίως από εναισθητωμένα ροδοφύκη των τάξεων Corallinales και Peyssonneliales, οι αλλεπάλληλες αποθέσεις των οποίων μπορούν σε βάθος χρόνου να σχηματίσουν πολυδιάστατες υποβρύχιες δομές και υφάλους. Πλήθος άλλων ειδών-βιοκατασκευαστών συμμετέχουν σε αυτή τη βιογενή διεργασία οικοδομώντας (π.χ. γοργονίες, σκληρακτίνια, σπόγγοι, βρυόζωα, πολύχαιτοι) ή αποδομώντας («βιοδιαβρωτές», π.χ. σπόγγοι του γένους Cliona που διατρυπούν, ή αχινοί που θρυμματίζουν το ασβεστώδες υπόστρωμα), αυξάνοντας διαρκώς τη δομική πολυπλοκότητα των κοραλλιγενών σχηματισμών. Ακριβώς λόγω της πολυπλοκότητας τους, οι δομές αυτές αποτελούν σημαντικό καταφύγιο για μεγάλο αριθμό ασπονδύλων (π.χ. καρκινοειδή, εχινόδερμα, μαλάκια, ασκίδια) και ψαριών, γεγονός που τις καθιστά πυρήνες θαλάσσιας βιοποικιλότητας. Κατά κανόνα, οι κοραλλιγενείς οικότοποι χαρακτηρίζονται από υψηλή αισθητική αξία αλλά και υψηλή ευπάθεια λόγω των εξαιρετικά αργών ρυθμών αύξησης των επιμέρους ειδών τους.

Γιατί μελετούμε τους κοραλλιγενείς οικοτόπους;

Οι θαλάσσιοι αυτοί οικότοποι είναι μοναδικοί σε παγκόσμιο επίπεδο και κατατάσσονται μεταξύ των ομορφότερων και πλουσιότερων σε ζωή θαλάσσιων τοπίων που μπορεί κανείς να προσεγγίσει με αυτόνομη κατάδυση. Λόγω της δομικής πολυπλοκότητας που παρουσιάζουν, φιλοξενούν πλήθος ειδών μεγάλης οικολογικής, αισθητικής και εμπορικής αξίας, ορισμένα από τα οποία προστατεύονται από την Εθνική αλλά και τη Διεθνή νομοθεσία. Οι κοραλλιγενείς οικότοποι συχνά απειλούνται από τις ανθρώπινες δραστηριότητες. Η ανεξέλεγκτη αγκυροβολία, η κατάδυση με έλλειψη περιβαλλοντικής ευαισθητοποίησης, η υπεραλίευση και τα απορρίμματα, σε συνδυασμό με την εισβολή αλλόχθονων ειδών και την αύξηση της θερμοκρασίας της θάλασσας (λόγω κλιματικής αλλαγής), αποτελούν τις κυριότερες απειλές που μπορεί να υποβαθμίσουν σημαντικά την κατάσταση των κοραλλιγενών οικοτόπων.

c) Organizing and realizing the testing of CIGESMED citizen science protocol in the field. The aim of this activity was to test the effectiveness of one of the proposed citizen science protocol (i.e. tablet with a specific data form, practical guidelines) that was developed in the framework of CIGESMED project, in the National Marine Park of Zakynthos (NMPZ). To this end, volunteering experienced SCUBA divers (local

recreational and/or professional divers, instructors and owners of local diving centres) participated in this study. The citizen science protocol was tested in selected study sites of CIGESMED within the NMPZ, during July and September 2015. Further testing will be also carried out during the summer of 2016. The methodology, results, conclusions and suggestions of this initiative were thoroughly presented in the following interim report (attached to the deliverables of the current reporting period):

Dimitriadis C., Gerovasileiou V., Dailianis T., Sini M., Kalli E., Sourbes L., Arvanitidis C., Koutsoubas D. 2015. Testing CIGESMED citizen science protocol in the field: assessment and results. CIGESMED project internal report, NMPZ, Zakynthos, Greece. 10p.

d) Participation in the testing of the webpage of Citizen Scientists for CIGESMED.

9. PROGRESS OF REALIZED ACTIONS

The progress of the activities that the Management Agency of the National Marine Park of Zakynthos carried out in relation to CIGESMED work packages is provided in the following table.

NMPZ Activities	CIGESMED WP's	NMPZ PROGRESS
Activity 1 *Coralligenous assessment and monitoring*	**WP2** - *Coralligenous assessment and threats in the different basins* **WP3** - *Indicators' development and test*	**Completed** (field work, testing and implementation of protocols, data gathering, processing and analysis)
Activity 2 *Management tools*	**WP4** - *Innovative monitoring tools* **WP6** - *Data management, mapping and assimilation tools*	**Completed** (establishment of research station for the long term monitoring of coralligenous habitat, data management and assimilation tools)
Activity 3 *Participatory process- Promotion - Public awareness activities*	**WP5** - *Citizen science network implementation* **WP7** - *Outreach, dissemination and stakeholder engagement*	**Completed** (involvement in CS network implementation, involvement in the development of the CS protocols and informational material, implementation and evaluation/testing of CS protocol in the NMPZ with divers, production of educational/promotional leaflet, engagement of stakeholders, communication of CIGESMED actions to other NetWorks)

9. FINAL GENERAL ASSEMBLY 2016

The members of NMPZ/University of Aegean working group Koutsoubas D. and Sini M. will participate to the final general assembly of CIGESMED project which will be held from 27 to 29 of June 2016 at Marseille, France.