



<http://cs.cigesmed.eu>



www.cigesmed.eu

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.




Horizontal habitat extent: facing the area that you decided to observe, do you estimate that the coralligenous formation extends across **less than 5 m**, **between 5 and 10 m**, **between 10 and 20 m**, or **more than 20 m**?

Habitat continuity: facing your observation area again, does the coralligenous concretion seem to be an **isolated patch**, surrounded by bare rock, sand, or different habitats? Or there are **several patches**? Or, you are facing a **continuous**, uninterrupted coralligenous surface?

Slope: are you facing a **vertical**, **sloping**, **horizontal** or **overhanging** wall?

Rugosity: if there are some crevices on your wall, are they even **too small to introduce your fist** inside them? Or you can **introduce** your **fist**, your **head**, or even your **shoulders**?

Orientation: if you have a compass, face the wall and tick the direction indicated by the imaginary arrow coming out from it. Obviously, horizontal substrates do not have any orientation. If you do not have a compass, just ask to your buddy, dive master, etc.... someone might know it!

Observation depth:	Current None <input type="checkbox"/> Weak <input type="checkbox"/> Strong <input type="checkbox"/>		Visibility Clear water <input type="checkbox"/> Some particles <input type="checkbox"/> Turbid <input type="checkbox"/>		
Habitat extent Verticale observed Min depth: Max depth:		Horizontal <5 m <input type="checkbox"/> 5-10 m <input type="checkbox"/> 10-20 m <input type="checkbox"/> >20 m <input type="checkbox"/>		Habitat continuity 	
Slope 			Rugosity 		Orientation N <input type="checkbox"/> S <input type="checkbox"/> NE <input type="checkbox"/> SW <input type="checkbox"/> E <input type="checkbox"/> W <input type="checkbox"/> SE <input type="checkbox"/> NW <input type="checkbox"/>

6. Check if there are some invasive species or other pressures, and tick the abundance class for each one. You do not need to count; you should just take note of your impression.

Do you think that the presence of the **invasive species** is limited to few algae (+) or they are dense and cover a lot of the substrate (++)?

Can you see only few sparse (+) **mucilaginous aggregates** or they are dense and cover extended surfaces (++)?

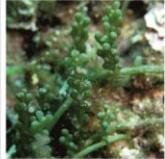
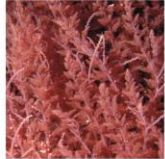







Is the **necrosis** (death of the living tissue/cells) limited to few parts of the colonies and few colonies (+), or it is extended to the entire organism and over several specimens (++)?

Is there some sparse **sediment** settled on coralligenous formations (+)? Or do you see a heavy layer covering everything (++)?

Look at the cliff toe: can you see few broken colonies of bryozoans and gorgonians (+)? Or a lot of them (++)? These are **marks of divers' recklessness**.

Can you see few (+) or several (++) **fishing gear**, litter and anchoring marks?

Obviously, all these pressures could also be absent from the area (o)!

Pressures				
				
<i>Caulerpa cylindracea</i>	<i>Asparagopsis</i> spp.	Mucilaginous aggregates	Necrosis/mortality events	Sedimentation
0 + ++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 + ++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 + ++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 + ++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 + ++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
				
Divers recklessness marks	Fishing gears	Litter	Anchoring	
0 + ++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 + ++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 + ++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 + ++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

0 = absent
+ = limited
++ = extended


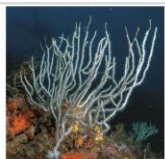



7. Observe the **species** and assess their class of abundance.

If you cannot see a species, probably is because it is **absent**: so you can tick “0”.

If you observe only few, sparse specimens, it means that the species is **scarce**, then tick “+”.

If you can see **abundant** regularly distributed specimens, tick “++”.

Finally, if you observe **very abundant** and densely distributed specimens, then tick “+++”.

Species				
				
<i>Eunicella cavolini</i>	<i>Eunicella singularis</i>	<i>Paramuricea clavata</i>	<i>Leptogorgia sarmentosa</i>	<i>Savalia savaglia</i>
0 + ++ +++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 + ++ +++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 + ++ +++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 + ++ +++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 + ++ +++ <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

0 = absent + = scarce ++ = abundant +++ = very abundant

8. Write **water temperature at the depth of the observation**.

Water temperature at observation depth:

9. If you noticed anything else that you consider interesting, such as additional pressures or particular species, do not hesitate to take notes about it and to come in contact with us!

Did you observe anything else?

10. Back home: upload your data and eventual photographs in to the website (<http://cs.cigesmed.eu>).

When data uploading is completed successfully, you can erase the tablet with a simple rubber and use it again as many times as you want!

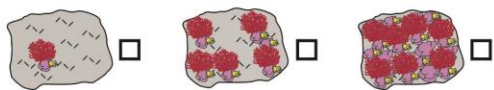
Name _____

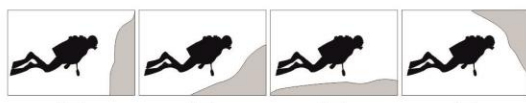
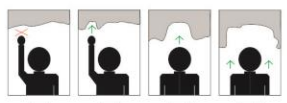

Site _____

Date _____

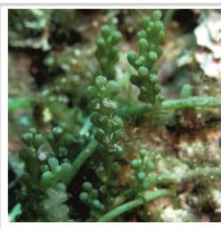

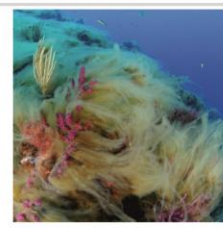


At what depth you met colder water? _____ m / never

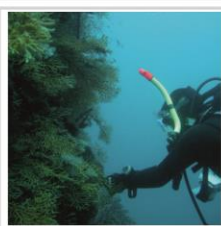
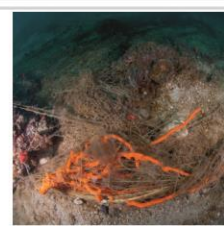

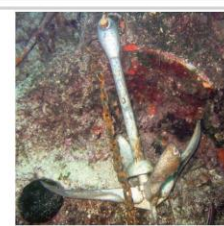
Observation depth: _____
 Current: None Weak Strong
 Visibility: Clear water Some particles Turbid

Habitat extent: Vertical observed _____
 Horizontal: <5 m 5-10 m
 Min depth: _____
 Max depth: _____ 10-20 m >20 m
 Habitat continuity: 

Slope: 
 Rugosity: 
 Orientation:  N S
 NE SW
 E W
 SE NW

Pressures

				
<i>Caulerpa cylindracea</i>	<i>Asparagopsis</i> spp.	Mucilaginous aggregates	Necrosis/mortality events	Sedimentation
0 <input type="checkbox"/> + <input type="checkbox"/> ++ <input type="checkbox"/>	0 <input type="checkbox"/> + <input type="checkbox"/> ++ <input type="checkbox"/>	0 <input type="checkbox"/> + <input type="checkbox"/> ++ <input type="checkbox"/>	0 <input type="checkbox"/> + <input type="checkbox"/> ++ <input type="checkbox"/>	0 <input type="checkbox"/> + <input type="checkbox"/> ++ <input type="checkbox"/>

				0 = absent + = limited ++ = extended
Divers recklessness marks	Fishing gears	Litter	Anchoring	
0 <input type="checkbox"/> + <input type="checkbox"/> ++ <input type="checkbox"/>	0 <input type="checkbox"/> + <input type="checkbox"/> ++ <input type="checkbox"/>	0 <input type="checkbox"/> + <input type="checkbox"/> ++ <input type="checkbox"/>	0 <input type="checkbox"/> + <input type="checkbox"/> ++ <input type="checkbox"/>	

Did you observe anything else?



Species



Eunicella cavolini

0 + ++ +++



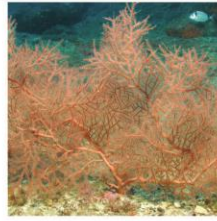
Eunicella singularis

0 + ++ +++



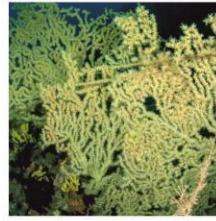
Paramuricea clavata

0 + ++ +++



Leptogorgia sarmentosa

0 + ++ +++



Savalia savaglia

0 + ++ +++



Shark eggs

0 + ++ +++



Anthias anthias

0 + ++ +++



Epinephelus marginatus

0 + ++ +++



Scorpaena spp.

0 + ++ +++



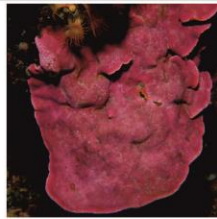
Centrostephanus longispinus

0 + ++ +++



Other sea urchins

0 + ++ +++



Calcareous red algae

0 + ++ +++



Peyssonnelia spp.

0 + ++ +++



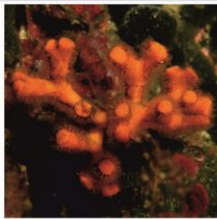
Agelas oroides

0 + ++ +++



Axinella spp.

0 + ++ +++



Myriapora truncata

0 + ++ +++



Other bryozoans

0 + ++ +++



Scleractinians

0 + ++ +++



Cliona spp.

0 + ++ +++



Corallium rubrum

0 + ++ +++



Homarus gammarus

0 + ++ +++



Palinurus elephas

0 + ++ +++



Scyllarides latus

0 + ++ +++

Water temperature at observation depth:



0 = absent + = scarce ++ = abundant +++ = very abundant