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First observations of the macrozoobenthos biodiversity of Oran coastal area, Algeria

Hussein Boumediene, Bouras Djillali

Department of biology, Faculty of life science and nature, Oran University, BP, 1524 El Mnaouar, Oran, Algeria

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Abstract

This study allows us to have an overall idea about the qualitative and quantitative status of macrozoobenthos that is rich and diverse. It is highly endangered due to human activities. The development of actions to promote conservation, including the establishment of a monitoring system and monitoring of key species is essential. The inventory macrobenthic species of the subtidal zone during 4 years 2009 to 2012 of follow-up shows the distribution uneven in different taxa by a dominance of sponges presented by 25 species, molluscs represented by 20 species then cnidarians by 15 and echinoderms by 9, crustaceans are the least represented, these fig.s reflect the strength from our quantifications and not reality. The results obtained after prospecting the sub-littoral different stations show a clear qualitative and quantitative difference between sites close to human actions (settlements, infrastructure, industry and pollution) and those far to the east and the West on the one hand and between sites hard or soft substrate on the other. The most represented groups correspond to sponges, cnidarians, echinoderms, crustaceans and mollusks bivalves and gastropods.

***Corresponding Author:** Bouras Djillali ✉ dilalbouras@gmail.com

Introduction

The evaluation and annual monitoring of the ecological habitat structure and macrobenthos of subtidal coastal Oran for four years demonstrates the diversity of ecosystems (coastal and marine) which is judged important because of the numerous sensitive settlements constituting it in both the fauna and flora (Hussein, 2012). The subtidal layer settlement is characterized by rocky substrata and furniture (Hussein, 2012; Grimes *et al.*, 2004; Grimes, 2008; Grimes 2002; Lalèyè, 2000). It composed of a complex range of species in terms of feeding diet from Ichthyofauna herbivorous species associated with voracious carnivorous (Saupe, Sars, Scorpion fishes, groupers, moray eels) to suspensivorous and detritivorous (sea urchins, sponges, polychaetes, mussels). Thus, complexity of the food chain in this coastal ecosystem shows the importance of the ecological structure and the biodiversity of Oran sub-littoral. The presence of Unlimited dregs of Arzew Gulf and Oran Port, and the islands and islets which are plots of "fly-ways" between Europe and Africa, belts algae, *Posidonia* meadows, sidewalks vermetid and *Lithophyllum byssoides* and *Cystoseira* belts are only a few remarkable habitats of Oran (HUSSEIN, 2012), playing a special role in the functioning of coastal ecosystems important primary production complex architectures inducing a high diversity of macrozoobenthos associated spawning (Simboura and Zenetos, 2002), nursery and refuge for many species. So they have ecological and economic interests (Bellan-Santini, *et al,* 1994; Peres and Picard, 1964; Ross *et al.,* 1984; Bellan *et al.,* 1999) because they are home to most of them, species of commercial interest and constitute a reservoir of genes and molecules potentially exploitable.

Complex pollution threats facing the state of macrozoobenthos subtidal (Bouras *et al.*, 2011; Hussein, 2007) Oran require a large number range of responses across a broad spectrum of public and private sectors, the implementation of national and regional actions the participation and involvement of all countries, stakeholders and users.

Aims and objectives

This is a preliminary study because the anterior work in this area addresses only the overall appearance of the biodiversity without specifying an ecological system. Consequently, in this study we try to establish a baseline of macrozoobenthos structure of the subtidal of the Oran's Shore. In this logic, our objective is not only to describe the quality of species and to define benthic communities over time, but also to compare the variations of species richness depending on the geographical location of the 10 sites taking into account ecological structure of the different habitats. In a broader context, this amounts to studying the one hand stand structure subtidal and other relations between the stands and the structure of the habitat.

In second time the results of this study may open the possibility to place the Oran ecological Macrozoobenthos system in its Mediterranean context.

Material and methods

Geographical Context

The coast of Oran is located on the southern shore of the Mediterranean; Alboran Sea, it is located in northwestern Algeria, 432 km west of the capital Algiers. the town stands at the bottom of an open north of the gulf of Oran bay and is dominated to the west by the mountains of Aïdour (429 m) which separates the town of Mers -El-Kebir, the west sector is characterized by beaches of Ain Türck, Cape Falcon, and Madragh bay Andalusian up Madagh the coast is rocky cliffs and as small cap, all island (island Plane (Paloma) and islands Habibas) is clearly visible from this region. To the east, the Macta (gulf of Arzew) limited to the west by the carbon cap (35 ° 45 'no ° 20' w) and east of the cape ivi (36 ° 37'n -0 ° 13 'w). We find a long sandy beach arc that ends with the big lng port Bethioua. From this point the coast rocky back north to the islands of Arzew and stretches west to cap carbon (Dermeche, 1998).

Sites and sampling

The entire coastline 124 km (1/10) of the national assembly, 10 stations were investigated (Fig 1) in diving from the surface (biological zero) and 35 m deep (photic zone) during four years of follow-up between winter and summer. Each sector has been a transect starting from the shoreline seaward. The species identification was carried out *in situ* or after video wild harvest in the laboratory or from video footage taken by cameras underwater.

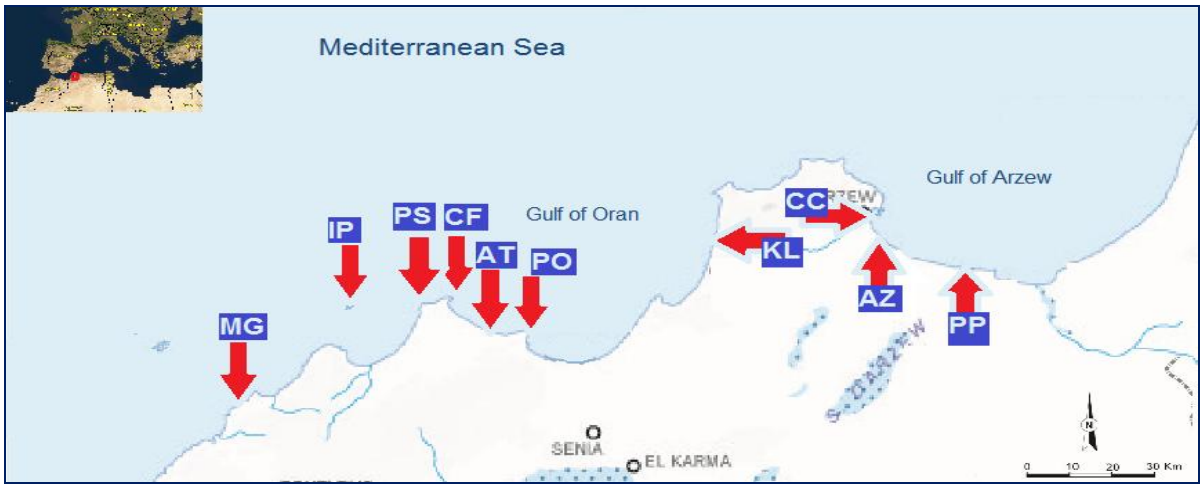

Fig.1. Overview of the marine Oran area and the sampling stations.
1-Port of Poul (PP), 2-Arzew (AZ), 3-Cap Carbon (CC), 4-Kristel (KL), 5-Port of Oran-Monta, (PO), 6-Ain Türck (AT), 7- Cap Falcon (CF) , 8-Pain Sugar-Madrag (PS), 9 - Plane island (IP), 10-Madagh (MG).

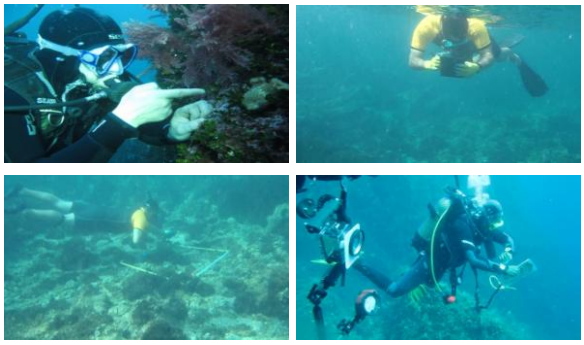

Fig. 2. Methods used in diving for the study of communities: from left to right and top to bottom: observation and sampling counts macrozoobenthos, photography and video underwater.

The Macrozoobenthos resources are most often sedentary and live in constant and close relationship with nature and the quality of the substrate. Because of this reduced mobility, these marine organisms more or less fixed, directly suffer the influence of environmental conditions of the site concerned (including human disturbance) and thus reflect local environmental conditions (Molinier and Vignes, 1971; Molinier, 1971; Peet, 1974).

Localization and characterization of stands is an essential tool of knowledge, diagnosis and monitoring

of the coastal and marine environment and that under the protection of the coastal and marine ecosystem (Eleftheriou et Holme, 1984; Bellan-Santini, 1969; Boudouresque, 1970). Among the 10 stations include one hand, 6 stations hard substrate (CC, PO, CF, PS, IP, MG) and 4 stations in soft substrate (AT, KL, PP, AZ) and secondly 4 stations (DC, PS, IP, MG) considered as a reference area because of the total lack of anthropogenic pressures and pollution (unpolluted areas) and 6 stations (PO, AT, KL, PP, CF, AZ) called disturbed (polluted areas) to causes of human activities that have adverse impacts on coastal and marine environments.

Inventory and investigation

The methodology consists in traversing the area of the deepest area to the coast, dives ending in most cases on the coast (0 m). During this trip, was visually identifies dominant and remarkable species of different habitats, describe the topography and the underwater landscape and reports any type of information likely to bring relevant elements.

The strategy includes an inventory of biological communities and habitats, habitat mapping on reference areas, monitoring of the spatial and temporal dynamics of macrozoobenthos structure. A sampling system was implemented on well-defined sites. Campaigns on faunal populations are intended to:

- At each site, the study of the structure ecologic and composition of stands;
- The whole area, the study of how the dynamics and timing of ecological and biodiversity structure.

The transects were observed using an echo sounder to measure different depths and graduated strings demarcated transects and submergible sheets containing the target species for each depth.

In total, the study of benthic communities need transects 147 dives including some deep (35m: Ile Plane, Ain Türck Cap Carbon), 15 radial perpendicular to the coast with an outboard motor; occasional dives to audit and shares some general observations. 10 stations were surveyed to quantify the quality and quantity of zoobenthos. The bionomics aspects was supported by underwater images taken (videos and photographs of habitats and biological communities) transects according to the protocols REBENT MED.

Identification

The identification and classification of species is made possible through sheets FAO species identification, as well as more recent scientific documents (Boudouresque, 2005. Pergent *et al*, 2007) and many key determination very detailed and the existence of numerous articles on certain families or species of crustaceans and molluscs gastropods and bivalves in particular. Digital photographs were also taken to facilitate the identification and distribution of biotic communities for the characterization of communities; we followed the same approach as Peres and Picard (1964) and UNEP-MAP (1998). Species determines diving was assessed with a semi-quantitative scale: (cc) very common, (c) common (r) unusual.

Diversity and specific richness

For species and habitats of conservation interest, it was based on Annexes II and III to the Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean of the Barcelona Convention (1995). For each output, the number of species and the total number of individuals per species are recognized (Borja *et al,* 2000; borja and, 2004; Gray *et al,* 1992). Then the density is expressed per square meter.

Our approach has been, after the counting of samples and quantification at sea, quantitatively define the faunal composition of the various stations. Thus, a first analysis of the raw data used to determine the occurrence of different species and to establish various rankings stations according to their species richness or as biomass (Grall and Coïc, 2005; Rosenberg *et al*., 2004). Before comparing the results

with those of work already done (Algiers coast for exemple), large units identified were characterized and described using Shannons index (H' and H Max) and equitability to assess the current operating status of each station then the entire coastal and marine ecosystem Oran coast.

1. Specific richness (S) is conventionally defined as the number of surveyed a scale determined space.

2. Diversity indices Shannon-Wiener
Different diversity indices currently used allow studying the structure stands fauna referring to a specific spatiotemporal context.

The observations made *in situ* and also from photographs underwater, which could be analyzed immediately on a computer, the data are reported below. These field observations was driven summarize the characteristics and condition of macrozoobenthos at the subtidal Oran.

Results

Biodiversity structure

The subtidal of Oran is an area of high biological productivity with a diverse and dense benthic fauna but it is subject to natural variations in climate and anthropogenic disturbances origins increasing (Bouras *et al.*, 2011).

In general, species biodiversity, abundance, ecological production and spatial distribution have large seasonal variations in response to hydrological variability (Abdelguerfi, 2003). Knowledge of these variations in the Oran coast is necessary for the understanding of the community structure. Little research has been done on time/space variations of subtidal macrozoobenthos of Oran coast.

During our inventory and monitoring biodiversity structure subtidal 2009 to 2012, the distribution is uneven in different taxa by a dominance of sponges presented by 25 species, molluscs represented by 20 species then cnidarians and echinoderms were represented by 15 and 9 species respectively, crustaceans are the least represented with polychaete and ascidian, these fig.s reflect the richness comes from our quantification on ground. The results obtained after prospecting the subtidal different stations show a clear qualitative and quantitative difference between sites close to human actions (settlements, infrastructure, industry and pollution) and those far to the east and the West on the one hand and between sites hard or soft substrate on the other. The most represented groups correspond to sponges, cnidarians, echinoderms and crustaceans, bivalves and gastropods mollusks.

Organization

Knowing that the major purpose of the study is to establish a baseline of ecological structure and biodiversity the subtidal Oran and that the majority of this floor is dominated by a cover bedrock, 6 stations have subtidal habitats hard substrate and 4 stations (Kristel: KL ,Ain Türck: AT, Port of Pouls: PP, Arzew: AZ) in soft substrate, in order to facilitate comparison between the different communities in space and detecting the resulting impact of human disturbance on the organization of the procession of macrozoobenthos in time.

Specific richness

Time tracking seems logical from the results (Fig.3) or each station, the sub-littoral is characterized by specific ecological structure (nature of the substrate, climate, hydrodynamics and anthropogenic action ...). The inter-annual variations in biological communities are made possible thanks to the impact of climate disruption and / or anthropogenic (distribution limits, introduced species, pollution ...).

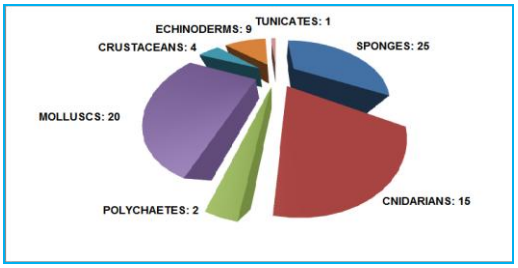

Fig. 3. Presentation of the main zoological groups subtidal during four years of.

The Fig. 4 clearly shows the impact of coastal development and human impacts on species composition of benthic animal communities and their structure and their specific organization. Macrozoobenthos *S* increases to a 55 Madagh (MG) , it is important for the inter-annual changes in the MG stations, IP, PS, PO, CC compared to other stations or *S* does not exceed the scores. The inventory shows a wealth consists of 76 species representing 33% of sponges, 27% of molluscs, 20% of cnidarians, echinoderms 12%, 5% crustaceans, polychaetes 3% and 1% represented by ascidian *Halocynthia papillosa*.

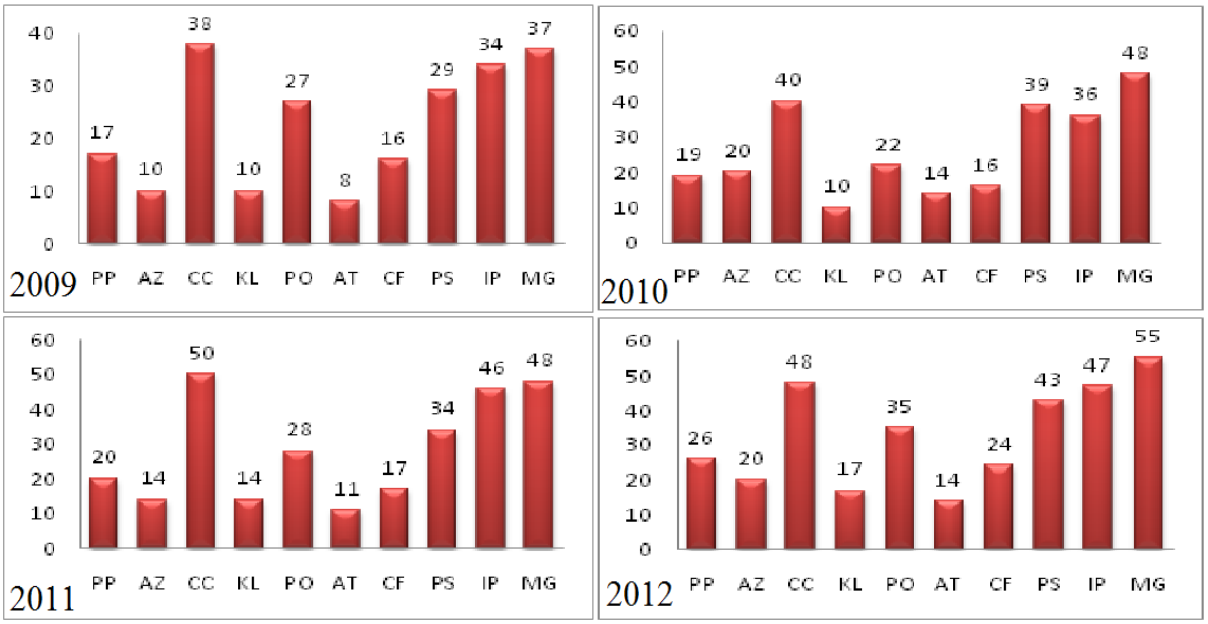

Fig. 4. Spatial variation in species richness "S" macrozoobenthos subtidal coastal Oran for 4 years of follow up.

Stations between KL, CF show in Fig 4 low biodiversity and reduced compared to stations in the east and west of the city of Oran (PO and AT) density. CF station and CC is more significant in wealth because these rocky headlands shifted to the open sea and at least wild offerors favorable development in coastal and marine conditions. On the other hand PS, IP and MG (western coast of Oran) is the best representative for the time.

The sponges (S : 25) and molluscs (S : 20) generally dominate the appearance biodiversity benthic communities of the subtidal hard substrate, against cnidarians (S:15) and echinoderms (S : 9) dominate in density or biomass urchin *Paracentrotus lividus* as, sea cucumber *Holothuria tubulosa*, Anemone *Anemonia viridis* which present large populations at the first meters [1]. This type of substrate is highly developed in the coastal Oran where it may exceed 3 m under the effect of strong hydrodynamics. Subtidal populations are well represented in these stands that fall between 0 and - 35 m on scree and subtidal rock, and depth distribution varies depending on the hydrodynamics and the inclination of rock surfaces and texture sedimentary. We will make a separation between the upper layer (0-8 m), medium (3-15 m) and lower (17- 35m).

Index of Shannon

According diversity index of Shannon 'H' and H Max "applied to *in situ* data, it appears that the coastal marine ecosystem Oran is clearly disturbed in the vicinity of effluents located by side of the city of Oran. This disturbance, mainly due to the discharge of wastewater (urban and industrial) marine pollution and human actions (Hussein, 2012), gradually decreases and as one moves away from sites that are

under strong anthropogenic pressures on the environment (Fig 5).

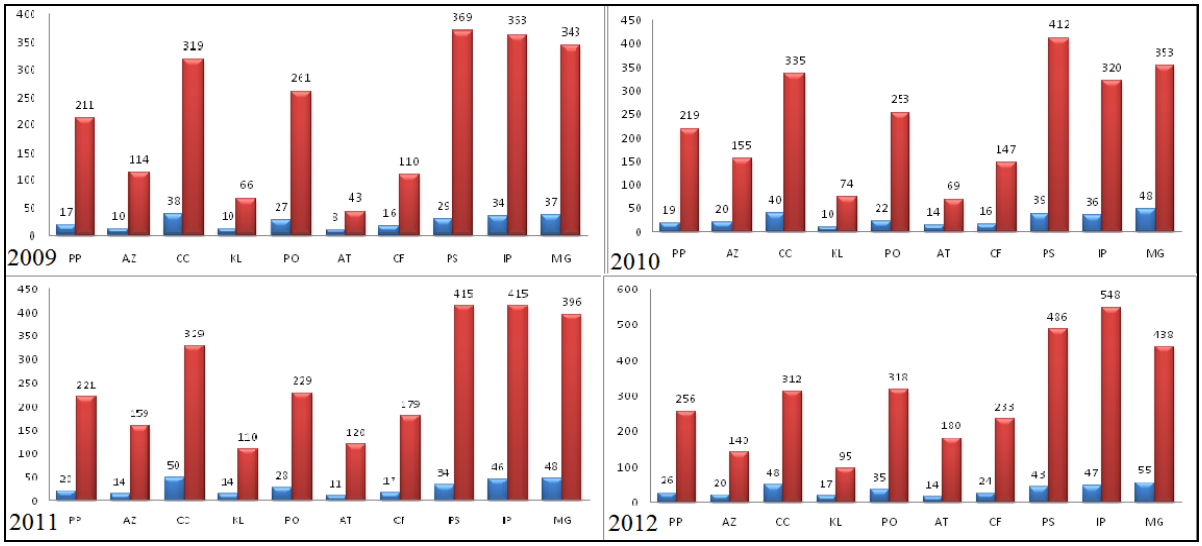

Fig. 5. Spatial variation in the density (number of individuals / m²) and species richness (number of species) of macrozoobenthos of the subtidal of Oran coast during 4 years of follow up.

The Macrozoobenthos substrates coastal furniture is less species-rich communities compared to bedrock. The distribution of individuals of each species in the stand is near normal except in strongly influenced by man stations. The temporal change of the Shannon indices along the coast of Oran is almost flat except around KL (Kristel), PO (Port of Oran) and AT (Ain Turck) or inter-annual changes are significant due to disturbances and instabilities structuring benthic communities.

Species distribution

Pielou index J is very useful for comparing the potential dominance between stations or between sampling dates. Fig. 6 shows the spatial and temporal variations in the distribution of species during four years, this development marks increases in several stations Oran coast, in the so-called natural or stations away from anthropogenic pressure the example of the island IP flat PS, MG and CC or J is maximal.

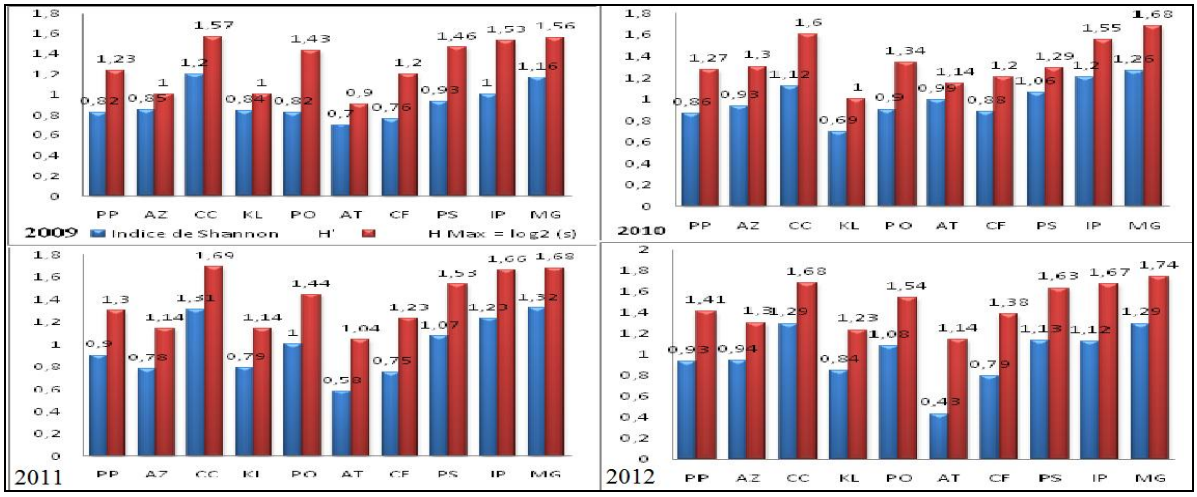

Fig. 6. variation of spatiotemporal diversity indices of Shannon (H' and H Max) benthic communities of subtidal Oran.

Benthic population is less diverse substrates in areas with furniture AT, which puts it in direct relation to the quality of the substrate and the instability of hydrodynamic and physicochemical conditions in the station. At stations and less disturbed rocky substrate, species have similar abundances in the stand; J is maximum sample MG, IP, PS, CC, AZ and PP. The results obtained at the end of the survey stations, show a high qualitative similarity between transects surveyed. Faunal groups better represented qualitatively consistent with sponges and mollusks. Cnidarians and echinoderms are represented by quantitatively significant numbers.

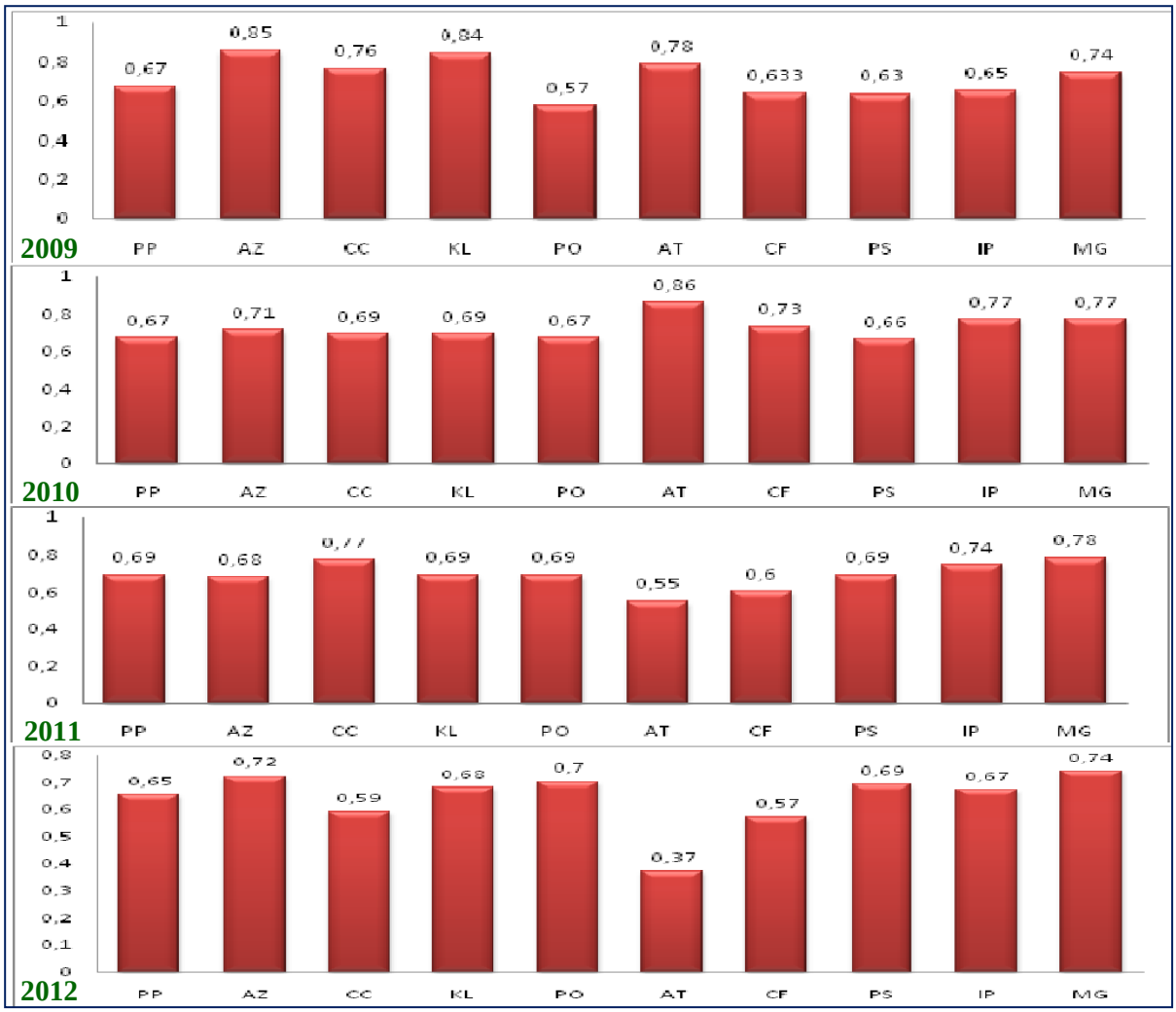

Fig. 7. Spatiotemporal variation of benthic communities repartition bedrock and furniture subtidal Oran.

Species richness of macrozoobenthic stand sub-littoral species is 76 but the actual list of animal species is probably much longer. This should not lead us astray, because this large difference is not entirely due to biological poverty Oran coast relative to other portions of the Algerian coast but it is largely attributed to the low number of jobs scientists carried out on this area. Population density is also very marked reduction in soft substrates. Coastal bedrock shows densities in the east and west of the area, however, habitats experiencing a sharp deterioration in the immediate vicinity of polluted stations. Indeed, densities are relatively low at the nearest zone effluent discharge stations (PO).

It appears from the analysis of the sampled fauna and in situ observations by diving, that the settlement of the sub-littoral zone is characteristic of substrates consisting of mud, sand, gravel or rock. This biodiversity, composed of a complex array of species standpoint diet (detritus from suspension feeders: Sea urchins, sea cucumbers, Polychaeta, Gorgons, Mussels ... herbivorous species associated with voracious carnivores (Saupes, Sars, Rascasses, Grouper, and cusk eel moray). Thus, the complexity of the food chain in this coastal ecosystem shows the importance of the ecological structure and biodiversity of Oran sub-littoral which acts as a vegetable for all coastal and marine area of the Algerian basin.

The functioning of the ecosystem in the subtidal stations lasted substrate is also in the normal state above, stations MG, IP, PS, CC, animal communities are more or less stable and more varied by supplying the rest stations which are under the influence of anthropogenic pressure AZ, KL, PO and AT.

Discussion

Marine animals do not live isolated from each other. They develop a woven in a variety of interactions eco-biology medium. These reports will predator/prey situations of dependency, symbiosis, parasitism or others in which an organism or group of organisms, provides shelter or other necessities to one or more species of the community. Members of all groups of organisms, invertebrates, fish, birds, mammals can be affected by pollution in general all damage caused to individuals in a group necessarily lead to alterations in the structure and functioning of biodiversity (Boudouresque, 1996).

By its high landscape diversity and richness of Oran coast usually presents itself as a huge nature reserve with a large and important heritage and potential necessary to save (Bouras, 2007; Boutiba, 2004).The sub-littoral Oran is a sensitive area due to its position between the terrestrial and marine coastal environment. Its preservation is so necessary for the proper functioning of coastal and marine eco-biological system.

The results of the coastal and marine environment are far from expected hopes, despite efforts in ecological and socio-economic investigation and existing regulatory instruments (regulations, institutions, tools) are still largely improved. Funds are sandy mud on most of the continental shelf and sandy coasts to a loose substrate (beaches) and rocky to mangy ratings lasted characters constituting the major part of the sub-littoral Oran. This ecological structure requires a concentration of biodiversity in specific stations Oran coast and a variety considered high scale Mediterranean case Habibas Islands.

The structure of subtidal biodiversity population was studied through the Shannon index. Based on the proportions of species observed in each type of medium studied. This index combines richness and consistency and therefore a measure of the diversity of benthic population present throughout the study area. Thus, we observe a continuous decrease of the average Shannon index at stations that are subject to strong anthropogenic pressures. The lowest values are recorded in the nearest releases stations the rest of the area, the values of diversity are variable and reaches a maximum at the MG & CC station during 2011 and 2012 which are both ends of the surveyed area. Benthic population is less diverse substrates in areas with furniture, which puts him in direct contact with the substrate quality as well as the instability of hydrodynamic and physicochemical conditions in the area.

Rocky substrates show significant species richness: *Mytilus galloprovincialis, Paracentrotus lividus, Centrostephanus longispinus, Sphaerechinus granularis Holothuria tubulosa, Actinia equina, Anemonia viridis, Parazoanthus axinellae, Crambe crambe, Chondrosia reniformis Eunicella singularis, Dendropoma petraeum Pina nobilis, Octopus vulgaris , Dardanus arrosor* by against the upper floor level or brightness is so high that the rock is

covered with encrusting algae and turf favor the presence of a wide variety of gastropod molluscs and echinoderms herbivores. Species distribution as a function of feeding mode (scavengers, carnivores, suspension feeders) depends on the form in which the nutrient resource is available in the subtidal environment.

These funds are populated by different communities depending on exposure to light, hydrodynamics and sedimentation. It was observed the following species on different floors and horizons.

Biocenosis of the upper horizon (0-8 m) is mainly represented by limpets *Patella Sp* and the association of certain algae with vermet *Dendropoma petraeum* and limpet. Latter association forms plates almost everywhere in the lower intertidal zone. In some areas appear cnidarians represented by *Actina equina, Anemonia veridis*. Some gastropods are abundant *Patella ulyssiponensis*, *Osilinus turbinatus* and *O. articulatus* and crustaceans *Chthamalus stellatus* and *Pachygrapsus marmoratus* . Sessile fauna, we note the presence of bioconcretions *Dendropoma petraeum,* sponge *Ircinia fasciculata* and hydroids. In more shaded areas, the *Astroides calycularis* is very abundant. The vagile fauna consists of the gastropods *Patella coerulea*, *Patella ferruginea, ulyssiponensis Patella, Patella rustica* , *Patella safiana* , Cerithium *rupestre* and *Stramonita haemostoma* ; crustaceans *Eriphia verrucosa* and *Pachygrapsus marmoratus* , and sea urchin *Paracentrotus lividus* and Bivalv the famous mussel *Mytilus galloprovencialis*.

Biocenosis of the middle horizon (3-15 m) it is characterized by sponges which are common with *Chondrosia reniformis, Ircinia fasciculata, Sarcotragus spinosula, Crambe crambe* and *Cacospongia sp* . For cnidarians, are abundant in *Astroides calycularis*, the parazooanthus *Parazooanthus axinellae* and *Aglaophenia* hydroid of the genus, very abundant in vertical sectors, which happens to form forests. Other cnidarians are present as *Aiptasia mutabilis*, Actinaria and *Anemonia viridis* and the bivalve *Arca noae , Pinna nobilis* and *Pinna rudis*. It is important to note the presence of several species *Eunicela singularis* rocky areas usually slightly inclined and relatively well lit, where water is largely renewed by currents can descend to 70m deep. motile fauna, Note the presence of gastropods *Stramonita (=Thais) haemostoma*, *Fasciolaria lignaria* and *Mitra corniculata*, the sea urchin *Paracentrotus lividus*, *Sphaerechinus granularis* and Other sessils invertebrates are also present , sponges *Sarcotragus muscaria, S. spinosula, Crambe crambe and Cacospongia sp.* cnidarians *Astroides calycularis, Aiptasia mutabilis* and *Aglaophenia sp.* we note the presence of echinoderms *Ophidiaster ophidianus* and *Echinaster sepositus* . One of the most common examples of mutualism is the association between the hermit crab *Dardanus arrosor* and commensal anemone (misnamed) *Calliactis parasitica*. Both animals can live separately, as the hermit crab eremite *Calcinus tubularis*.

Biocenosis of the lower horizon (17- 35m) deep we note in particular the abundance of *Astroides calycularis* cup coral, sponges *Crambe crambe* and *Agelas oroides* and echinoderms *Ophidiaster ophidianus*, *Hacelia attenuata, Echinaster sepositus*, *Paracentrotus lividus* and *Sphaerechinus granularis*. Species that dominate sessile animals are filter feeders, such as sponges *Agelas oroides , Aplysilla sulfurea , Chondrosia reniformis, Crambe crambe, Dysidea avara, Hemimycale columella, Ircinia spp ,Phorbas paupertas, Spongia officinalis, Spongia agaricina*. Polychaetes *Hermodice carunculata, Protula Tubularia*, bryozoans and colonial ascidians. Depth beyond 35 m, there was observed the white gorgonian, yellow and purple *Eunicella sp*. For motile fauna, we note the presence of nudibranch *Discodoris athromaculata*; the echinoderms *Centrostephanus longispinus, Echinaster sepositus, Hacelia attenuata, Ophidiaster ophidianus* and *Holothuria Sp*.

The coralligenous assemblage is virtually all depths studied in drooping, overhangs and more shaded areas of scree (enclaves subtidal) and from -37 m in the horizontal and sub-horizontal surfaces. It corresponds to the lower coralline horizon littoral rock (Perez and Picard, 1964).

The structure of subtidal macroozoobenthos Oran is considered to have a high value because of its rich biodiversity and its visual beauty. Thus, the results obtained show that the Macrozoobenthos continues to decline over time. The study area where the population is heavily depleted and degraded in the vicinity of the city of Oran, Ain Türck, Cap Falcon and Arzew or coastal development and human impact is rampant. Follow-up campaigns are recommended on an even wider into deep space, to monitor and well valued stand structure in different types of sub-littoral substrates Oran coastal zone.

Conclusion and recommendation

Bay Ain Turck at the forefront of Madagh II, Carbon Cap, Cap Ferrat, Cap d'Auguille, Cap Falcon, Cap Blanc, Oran coast offer a variety of habitats, with the presence of remarkable landscapes in marine, remarkable habitats, species and ecosystems under important sailors, the example of Habibas Islands and Isle Plane plot of "fly-ways" Europe-Africa and biological communities associated with *Posidonia* meadows at Madagh, Pain Sugar and Cap Carbon has the far east of Oran coastal fonts enriched the life of the coastal marine area.

Benthic populations we studied have local or regional characteristics that result in notable frequencies of some typical species of the southern Mediterranean, but also by the scarcity or even the unexpected absence of other species. These variations between the 10 sites are due to natural factors and human factors. Possible natural biogeographic factors (nature and quality of the substrate) or related to the hydrodynamics and the absence of certain habitats. Anthropogenic factors can cause drastic reductions in populations; human activity appears to be the main culprit.

Facing a major human impact on both sides of the city of Oran, the implementation of development program of the Algerian west coast should introduce methodologies and tools for integrated management of coastal and marine subtidal communities involving local NGO, fishermen and local residents. One of the most important challenges: the conservation of biological diversity will require in particular challenging all stakeholders (policy makers, managers, farmers, ranchers, fishermen, developers, educators) to participate in the protection objectives of the coastal ecosystem and marine in Oran, Algeria north West.

In a socio-economic context, (Arzew -AZ, Marsa El Hadjadj -PP, Cape Falcon -CF), which is marked by much industrialization and urbanization, required by developers, and whose overall ecological and environmental balance remains. Such a situation is nothing strange , because we do think that the immediate return , he must think of the consequences of this development is about to exhaust and destroy all renewable resources in particular coastal and marine. Note the disappearance of huge forest areas along the coast (Kristel, Maddagh), the destabilization of coastal landforms and coastal (Port of Pouls , Ain Turk, Terga) and various types of pollution suffered by the marine ecosystem. This means a total absence of environmental economics.

In conclusion, this study allows us to have an overall idea about the qualitative and quantitative status of macrozoobenthos that is rich and diverse. The development of actions to promote conservation, including the establishment of a monitoring system and monitoring of key species is essential. It would be interesting to consider further studies in order to improve marine biodiversity which hitherto remains little known.

The data reported in this document observations provide the size of the work still to be done. The restraint biocenotic approach is justified by a several biological arguments, in this vision we need absolutely to complete our database with the human and social factors.

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