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SPATIO-TEMPORAL ORGANIZATION PATTERNS OF DEMERSAL ASSEMBLAGES OF THE EAST COAST OF CORSICA (MEDITERRANEAN SEA)

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SPATIAL STRUCTURES
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MULTIWAY TABLE ANALYSIS
STABILITY
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CORSICA

ABSTRACT. – The paper deals with the spatio-temporal organization patterns of demersal assemblages along the east coast of Corsica. We analysed data collected by the first standardized experimental bottom trawl surveys performed in this region from 1994 to 1999 (MEDITS programme). The use of a multiway table method (STATIS-CoA) showed that the spatial organization pattern of the demersal assemblages of eastern Corsica was highly stable during the period studied. This pattern was structured around three bathymetric areas (i) the continental shelf (between 50 to 200 m depth), (ii) the upper slope (from 200 to 500 m) and (iii) the deeper slope (from 500 to 800 m), but it did not show any heterogeneity in relation with latitude. Along the east coast of Corsica – characterized by one of the lowest fishing pressure rates within the whole northern Mediterranean Sea and by the scarcity of information on fishing patterns – our results contribute to the basic information required for multispecies fishery management. They suggest that all the trawlable areas along the east coast of Corsica could be considered as a single biogeographical unit, possibly split up into three bathymetric strata. Furthermore, if compared with results from studies carried out in Mediterranean regions with more intensive fishing rates, our results might provide a quantitative basis for achieving a better understanding of the impact of fishing pressure on organization patterns of demersal assemblages.

ORGANISATION SPATIALE
ASSEMBLAGES DÉMERSAUX
CAMPAGNES EXPÉRIMENTALES
ANALYSES MULTITABLEAUX
STABILITÉ
MÉDITERRANÉE
CORSE

RÉSUMÉ. – Le présent travail analyse l'organisation spatio-temporelle des assemblages démersaux de l'est de la Corse par une approche quantitative. Cette région, qui se caractérise par un des plus faibles niveaux d'exploitation des ressources démersales de l'ensemble du nord de la Méditerranée, a jusqu'ici été très peu étudiée. Dans ce contexte, nous analysons les données récoltées lors de la première série de campagnes de chalutages mise en œuvre entre 1994 et 1999 selon un protocole d'échantillonnage standardisé (programme MEDITS). L'utilisation d'une méthode multitableaux (STATIS-CoA) a permis de mettre en évidence la forte stabilité interannuelle de l'organisation spatiale des assemblages étudiés. La composition spécifique des assemblages est structurée autour de trois régions bathymétriques (i) le plateau continental, (ii) le haut de la pente continentale et (ii) le talus, mais elle ne présente aucune hétérogénéité en fonction de la latitude. Nos résultats constituent une première base de connaissances en vue des approches multispécifiques de gestion des ressources. Ils montrent notamment que l'ensemble de la zone d'étude peut être considérée comme une unité biogéographique unique, qui pourra éventuellement être affinée en trois zones bathymétriques. Enfin, mis en parallèle avec les travaux menés dans des régions de Méditerranée soumises à de plus fortes pressions de pêche, nos résultats pourraient constituer une base de référence pour mieux comprendre l'effet de la pression de pêche sur l'organisation spatio-temporelle des peuplements démersaux.

INTRODUCTION

In the Mediterranean Sea, most of the demersal fisheries are multispecies and multigear (Taquet *et al*. 1997, Relini *et al.* 1999). Associated with a lack of reliable commercial landings data, this makes it difficult to manage the fish stock by single-species quota control. Thus, after considerable efforts using single-species assessment as the main tool for fish stock management, multispecies assessment approaches are now the focus of increasing attention. Multispecies assessment recognizes that fish species do not exist independently of each other, and are not harvested independently (Daan 1987, Mahon & Smith 1989a). Multispecies assessments carried out throughout the world are usually based on fishery management units, defined as areas where catches with a specific type of fishing gear exhibit homogeneous and temporally stable species composition (Tyler *et al.* 1982, Murawski *et al.* 1983, Overholtz & Tyler 1985, Gabriel 1992). Defining a biogeographical area as a reference for management purposes first requires description of the spatio-temporal organization patterns of fish assemblages (Gabriel & Murawski 1985, Mahon & Smith 1989b, Auster *et al.* 1995, Langton *et al.* 1995, Mahon *et al.* 1998, Gaertner *et al.* 1999, Demestre *et al.* 2000). Most studies of this type are based on the results of scientific surveys. This was notably the case in the few Mediterranean regions where large scale experimental standardized trawl surveys have been performed but not along the east coast of Corsica. This region is both among the least intensively fished areas in the whole of the northern Mediterranean Sea (Relini *et al.* 1999) and to date very sparsely studied by fish biologists. Data recently collected during the MEDITS programme (Mediterranean International Trawl Survey; Bertrand *et al.* 2002) provides a basis for filling this gap by offering the first opportunity for analyzing the structure of demersal assemblages in this region and providing a reference basis for future regional comparisons for the assessment of the fishing impact on demersal species organization patterns.

In this context, we used data from the MEDITS surveys conducted yearly from 1994 to 1999 to study the spatial and temporal structure of demersal species assemblages along the east coast of Corsica. The questions addressed are the following. (1) What are the spatial distribution patterns of demersal assemblages? (2) May we observe sub-regional heterogeneities in species assemblage composition within the study area? (3) Are the assemblages stable over time?

MATERIAL AND METHODS

Data type and origin: The study is based on a set of abundance indices estimated along the east coast of Corsica (Fig. 1) from the French component (Ifremer-Sète, aboard the r/v L'Europe) of the international MEDITS programme (Bertrand *et al.* 2002a). Five bottom trawl surveys conducted in June 1994 (19 tows), 1995 (22), 1996 (22), 1998 (23) and 1999 (23) were considered.

For all surveys, a single randomly stratified design was used, based on depth. The study zone was divided into four depth strata: 50-100, 100-200, 200-500 and 500-800 m. Locations of sample units were selected randomly within each stratum. Allocation of tows in each

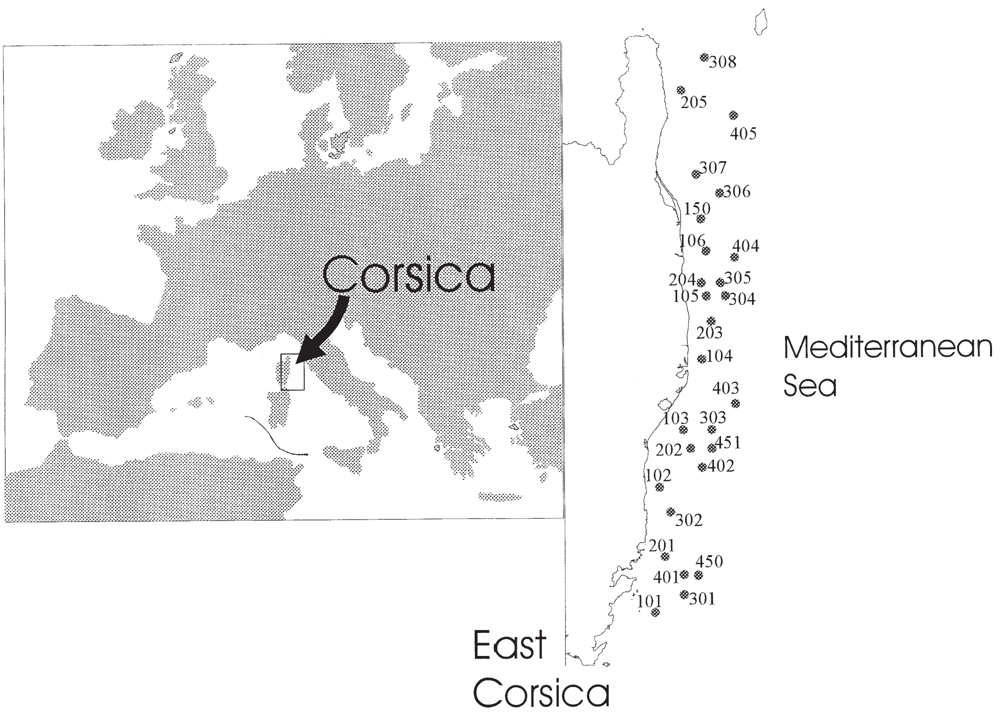

Fig. 1. – The study site, showing location of stations. The first digit of each station label indicates the bathymetric strata (1, from 50 to 100 m depth; 2, from 100 to 200 m depth; 3, from 200 to 500 m depth; 4, from 500 to 800 m depth).

depth strata was roughly proportional to the surface of the corresponding stratum. Each haul was made at approximately the same location every year. The standard device was a bottom trawl (GOC 73, Fiorentini *et al.* 1999) with 20-mm codend mesh size (stretched mesh). Hauls were only performed during daylight hours. At depth between 50 and 200 m the tow duration was 30 min, and 60 min below. The tow speed of 3 knots. An underwater Scanmar system was used to control the trawl geometry. The vertical opening of the gear was about 2 m, and its wing spread about 18 m (Bertrand *et al.* 2002b). The catches were converted into density (number of individuals by species and per square kilometre) for each haul studied. Values for density were transformed (ln [x+1]) before analysis to minimise the dominant effect of exceptional catches. Only 48 species presented in more than 5% of the tows were included in the analysis (see Table I).

Data analysis: The STATIS-CoA method (Gaertner *et al.* 1998) has been used to describe the spatio-temporal organization of the assemblages. This technique couples the multiway table STATIS method (Lavit *et al.* 1994) and Correspondence analysis (Benzécri 1973). We carried out STATIS-CoA to assess and describe the stable part of the spatial pattern of demersal assemblages of the east Corsica along the course of the study. The first stage of STATIS-CoA consists in calculating a matrix of scalar products between variables (i.e. species in the present case) for each table (i.e. trawl survey) in order to standardize the dimensions of the contingency tables. This step makes then possible to compare all the surveys by calculation of a matrix of scalar products between contingency tables. The diagonalization of this matrix provides eigenvectors. The k coefficients of the first eigenvector are then used to weight the k contingency tables in the calculation of an average table (compromise table). This weighting allows the construction of a compromise table where a greater importance is given to the surveys which have similar structures and a limited one to the other surveys. In the present work the diagonalization of the compromise table defines axes and components which express the common part of the spatial structure of a set of five annual trawl surveys. Independently, a separate Correspondence Analysis of each of the five surveys was carried out. This step allows the projection of the first axes of the separate analyses of each survey onto the first axes of the compromise table. This representation indicates how much the main structures of each survey are taken into account in the compromise (Lavit *et al.* 1994). In the present study, it gives a better insight into the temporal stability of the main organizational patterns of demersal assemblages of the east Corsica.

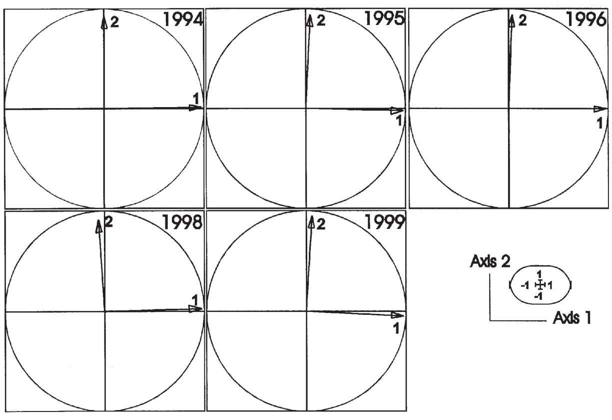

Fig. 2. – Projection of the first two factorial axes of the separate Correspondence Analysis of each survey (arrows) on the two first factorial axes of the STATIS-CoA compromise (axis 1: horizontal; axis 2: vertical).

In comparison with the classical STATIS method, the STATIS-CoA version used in the present work is well suited for analysing the spatio-temporal organization patterns of assemblages in term of species composition (Gaertner *et al.* 1998). For previous examples of the use of Multiway table method in several fields of marine ecology, one may refer to Gaertner *et al.* (1999), Mazouni *et al.* (2001), Levke *et al.* (2002), and Simier *et al.* (2004). This CoA version of STATIS may currently be performed with the ADE-4 software (Thioulouse *et al.* 1996). This software, and the details of the various steps of the calculations are freely available at the following address: http: //pbil.univ-lyon.fr/ADE-4.html.

RESULTS

Annual stability of spatial organization patterns of the demersal assemblages

The contribution of the different surveys to the construction of the compromise table provided by STATIS-CoA was constant (weighting 0.44 to 0.46, Table II). So, each of the five surveys played a similar role in the constitution of the STATIS compromise table. Moreover the fit of each of the tables to the compromise table (Cos^2) is homogeneous. The high similarity between the projections of the first and the second axes of the separate CoAs of each of the five surveys with the first two axes of the compromise table shows that the two main organizational directions expressed in the compromise table are common to each of the five surveys (Fig. 2). These results show the very good fit of each survey with the compromise and suggested strong interannual stability in the spatial structuring of demersal assemblages.

Spatial organization of the demersal assemblages

The projection of both the samples' (Fig. 3) and species' (Fig. 4) factorial scores onto the first two axes of the compromise shows a Guttmann effect. This situation means that the factorial axes are linked by a non linear relationship and they describe a single ecological phenomenon. Axes 1 and 2 accounted for 31% and 15% of the total variability respectively.

Figure 3A shows that the stable part of the organizational pattern of demersal assemblages is

Table I. – List of the species considered with detail on the abbreviated names used. Occurrence of species at each depth zone is expressed as the percentage of tows where the species was present. Number of tows within each depth zone is given into brackets.

Code	Species	Family	Occurrence (%) per depth zone (m)				
			50 -100 (28)	100-200 (18)	200-500 (38)	500-800 (28)	Total (109)
Crustacean							
NEPRNOR	*Nephrops norvegicus* (Linnaeus, 1758)	Nephropidae	0.04	0.78	0.76	0.04	0.41
PAPELON	*Parapenaeus longirostris* (Lucas, 1846)	Penaeidae	0.93	0.94	0.26	0.00	0.49
PLESACA	*Plesionika acanthonotus* (Smith, 1882)	Pandalidae	0.82	0.78	0.16	0.00	0.39
PLESEDW	*Plesionika edwardsii* (Brandt, 1851)	Pandalidae	0.04	0.67	0.61	0.04	0.34
PLESMAR	*Plesionika martia* (A. Milne Edwards, 1883)	Pandalidae	0.00	0.00	0.16	0.88	0.26
Fish							
ARGESPY	*Argentina sphyraena* Linnaeus, 1758	Argentinidae	0.04	0.00	0.76	0.72	0.44
ASPICUC	*Aspitrigla cuculus* (Linnaeus, 1758)	Triglidae	0.00	0.00	0.29	0.80	0.28
BOOPBOO	*Boops boops* (Linnaeus, 1758)	Sparidae	0.00	0.00	0.84	0.32	0.37
CAPOAPE	*Capros aper* (Linnaeus, 1758	Caproidae	0.00	0.00	0.87	1.00	0.53
CHIMMON	*Chimaera monstrosa* Linnaeus, 1758	Chimaeridae	0.00	0.11	0.84	0.96	0.53
CLORAGA	*Chlorophthalmus agassizi* Bonaparte, 1840	Chlorophthalmidae	0.00	0.00	0.47	0.96	0.39
ETMOSPI	*Etmopterus spinax* (Linnaeus, 1758)	Squalidae	0.07	0.50	0.55	0.40	0.39
GADIARG	*Gadiculus argenteus Guichenot, 1850*	Gadidae	0.00	0.00	0.16	0.64	0.20
GALUMEL	*Galeus melastomus* Rafinesque, 1809	Scyliorhinidae	0.00	0.06	0.39	0.12	0.17
HELIDAC	*Helicolenus dactylopterus* (Delaroche, 1809)	Scorpaenidae	0.00	0.06	0.95	0.72	0.50
HYMEITA	*Hymenocephalus italicus* Giglioni, 1884	Macrouridae	0.00	0.22	0.32	0.08	0.17
LAMACRO	*Lampanyctus crocodilus* (Linnaeus, 1758)	Myctophidae	0.21	0.22	0.37	0.00	0.22
LEPICAU	*Lepidopus caudatus* (Euphrasen, 1788)	Trachiuridae	0.32	0.50	0.42	0.04	0.32
LEPMBOS	*Lepidorhombus boscii* (Risso, 1810)	Scophtalmidae	0.07	0.22	0.34	0.04	0.18
LEPMWHS	*Lepidorhombus whiffiagonis* (Walbaum, 1792)	Scophtalmidae	0.39	0.22	0.21	0.32	0.28
LEPTDIE	*Lepidotrigla dieuzeidei* Audoin *in* Blanc and Hureau, 1973	Triglidae	0.07	1.00	0.26	0.00	0.28
LOPHBUD	*Lophius budegassa* Spinola, 1807	Lophiidae	0.36	0.89	0.87	0.40	0.63
LOPHPIS	*Lophius piscatorius* Linnaeus, 1758	Lophiidae	0.79	0.78	0.08	0.00	0.36
MACOSCO	*Macroramphosus scolopax* (Linnaeus, 1758)	Macroramphosidae	0.82	0.78	0.13	0.00	0.39
MERLMER	*Merluccius merluccius* (Linnaeus, 1758)	Merluciidae	0.00	0.06	0.97	0.92	0.56
MULBBAR	*Mullus barbatus* Linnaeus, 1758	Mullidae	0.39	0.61	0.11	0.00	0.24
MULSSUR	*Mullus surmuletus* Linnaeus, 1758	Mullidae	0.25	0.22	0.32	0.00	0.21
PAGEACA	*Pagellus acarne* (Risso, 1826)	Sparidae	1.00	0.94	0.16	0.00	0.47
PAGEERY	*Pagellus erythrinus* (Linnaeus, 1758)	Sparidae	0.00	0.00	0.68	0.16	0.28
PERICAT	*Peristedion cataphractum* Linnaeus, 1758	Peristediidae	0.07	0.06	0.63	0.16	0.28
PHYIBLE	*Phycis blennoides* (Brünnich, 1768)	Gadidae	0.00	0.06	0.87	1.00	0.54

Table I *(suite)*

RAJACLA	*Raja clavata* Linnaeus, 1758	Rajidae	0.00	0.00	0.11	0.64	0.18
RAJAMON	*Raja montagui* Fowler, 1910	Rajidae	0.00	0.06	0.18	0.28	0.14
RAJAOXY	*Raja oxyrinchus* Linnaeus, 1758	Rajidae	0.00	0.00	0.29	0.88	0.30
SCYOCAN	*Scyliorhinus canicula* (Linnaeus, 1758)	Scyliorhinidae	0.50	0.56	0.55	0.12	0.44
SERACAB	*Serranus cabrilla* (Linnaeus, 1758)	Serranidae	0.79	0.67	0.03	0.00	0.32
SERAHEP	*Serranus hepatus* (Linnaeus, 1766)	Serranidae	0.00	0.00	0.87	0.72	0.47
SOLOMEM	*Solenocera membranacea* (Risso, 1816)	Solenoceridae	0.00	0.00	0.55	0.52	0.31
TRAHDRA	*Trachinus draco* Linnaeus, 1758	Trachinidae	0.96	1.00	0.79	0.12	0.72
TRIGLYR	*Trigla lyra* Linnaeus, 1758	Triglidae	0.32	0.94	0.34	0.00	0.36
TRIPLAS	*Trigloporus lastoviza* (Bonnaterre, 1788)	Triglidae	0.93	0.56	0.00	0.00	0.33
URANSCA	*Uranoscopus scaber* Linnaeus, 1758	Uranoscopidae	0.82	0.89	0.00	0.00	0.36
ZEUSFAB	*Zeus faber* Linnaeus, 1758	Zeidae	0.00	0.00	0.26	0.52	0.21
Mollusc							
ILLECOI	*Illex coindetii* (Verany, 1839)	Teuthoidea	0.36	0.50	0.00	0.00	0.17
LOLIVUL	*Loligo vulgaris* Lamarck, 1798	Loliginidae	0.00	0.11	0.66	0.12	0.28
OCTOVUL	*Octopus vulgaris* Cuvier, 1797	Octopodidae	0.75	0.17	0.03	0.00	0.23
ROSSMAC	*Rossia macrosoma* (Delle Chiaje, 1829)	Sepiolidae	0.39	0.17	0.00	0.00	0.13
SEPIORB	*Sepia orbignyana* Ferussac, 1826	Sepiidae	0.36	0.67	0.16	0.00	0.26

based on a coast-open sea gradient which can be divided into three main regions: (i) the continental shelf (between 50 to 200 m depth), (ii) the upper slope (from 200 to 500 m) and (iii) the deeper slope (from 500 to 800 m). Except stations 302 and 304 which are located with stations of stratum 4, all the other stations are positioned with stations of the same bathymetric stratum. Stations 302 and 304 were located in two different regions of the studied area, but both were at the deeper part of stratum 3 (452 and 498 m depth respectively). This result strongly supports the hypothesis of a depth-dependent gradient, and illustrates the absence of latitudinal pattern at the scale of our study. Otherwise, Figure 3B shows the strong reproducibility of the position of the stations on the factorial axes from one survey to the other. The strong stability of this spatial pattern observed for the five surveys not only confirms but enhances our preliminary results (see Table II and Fig. 2).

Figure 4 allows the identification of the taxa along this bathymetric gradient. This figure provides a typology of species based on the common structure described from the five yearly surveys. The most coastal assemblage includes *Trigloporus lastoviza*, *Uranoscopus scaber*, *Serranus cabrilla*, *S. hepatus*, *Raja montagui*, *Trachinus draco*, *Mullus surmuletus*, *M. barbatus*, *Pagellus erythrinus*, *Octopus vulgaris*, *Boops boops*, *Zeus faber* and *Aspitrigla cuculus*. The list can be completed with two other fish species (*Scyliorhinus canicula* and *Pagellus acarne*) and with three cephalopod species (*Sepia orbignyana, Macroramphosus scolopax* and *Loligo vulgaris*) which mainly occupy stratum 2. The upper slope assemblage is characterized by *Raja clavata*, *Merluccius merluccius*, *Lepidorhombus whiffiagonis*, *Argentina sphyraena*, *Lophius budegassa*, *Capros aper*, *Lepidotrigla dieuzeidei*, *Trigla lyra*, *Lepidopus caudatus*, *Peristedion cataphractum*, *Gadiculus argenteus*, *Parapenaeus longirostris*, *Raja oxyrinchus*, *Chlorophthalmus agassizi*, *Lepidorhombus boscii* and *Rossia macrosoma*. The deeper slope assemblage includes *Nephrops norvegicus*, *Galeus melastomus*, *Helicolenus dactylopterus*, *Phycis blennoides*, *Plesionika edwardsii*, *Solenocera membranacea*, *Hymenocephalus italicus*, *Etmopterus spinax*, *Chimaera monstrosa*, *Plesionika martia*, *Lampanyctus crocodilus* and *Plesionika acanthonotus*. At this

Table II. – STATIS-CoA: structure defined for each survey.

	Weight	$\cos^2$
1994	0.44	0.70
1995	0.44	0.75
1996	0.45	0.79
1998	0.44	0.71
1999	0.46	0.82

Weight, contribution of each table in the construction of the compromise; Cos^2, fit of each table to the compromise.

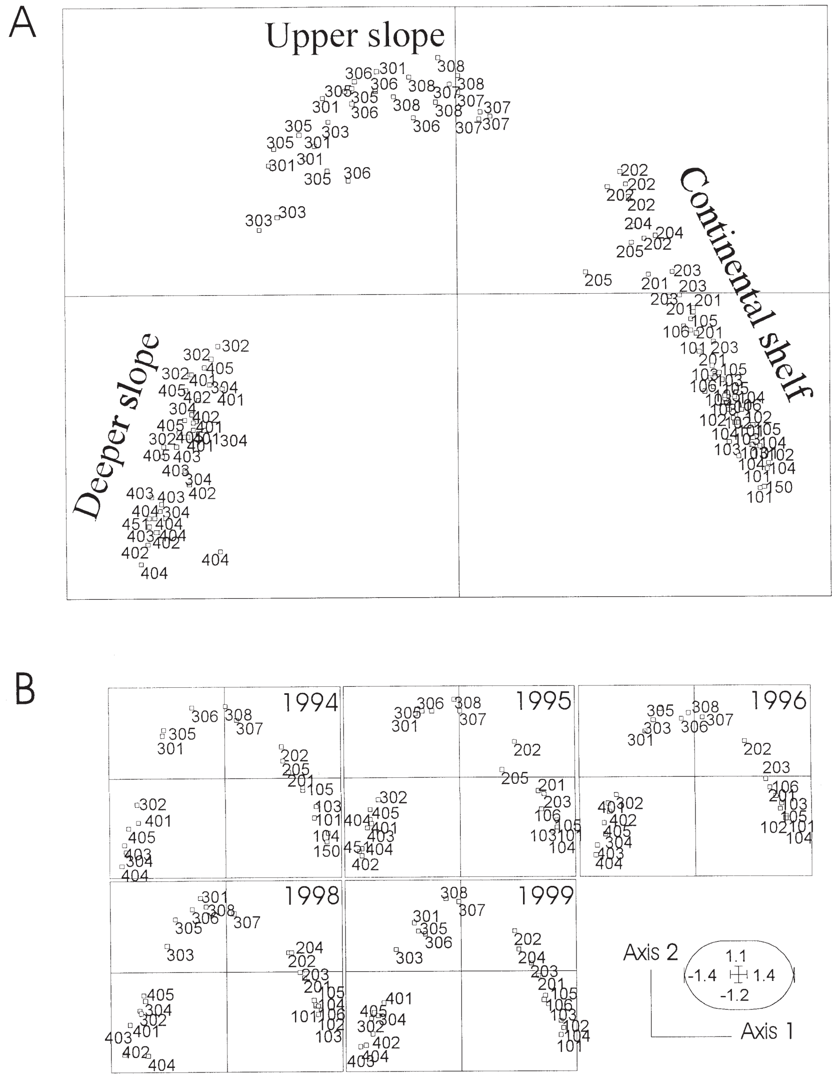

Fig. 3. – Projection of the factorial scores of the stations (A) for the whole studied period and (B) for each separated survey on the two first factorial axes of the STATIS-CoA compromise (axis1: horizontal; axis 2: vertical). Stations labelled as in Fig. 1.

stage, species such as *Lophius piscatorius* does not seem belonging to a specific assemblage.

DISCUSSION

The demersal assemblages along the east coast of Corsica exhibited clear spatial structuring, strongly orientated along a bathymetric gradient. This gradient was structured around three regions (i) the continental shelf (50 to 200 m depth), (ii) the upper slope (200 to 500 m) and (iii) the deeper slope (500 to 800 m). Each of these three areas was characterised by a specific assemblage. Our analysis also showed that the species composition of these three demersal assemblages was stable over the period studied.

The organization patterns of demersal species according to depth have been described worldwide (see e.g. Bianchi 1992, Gomes *et al.* 1992, Gordon & Bergstad 1992, Fujita *et al.* 1995, McClatchie *et al.* 1997, Mahon *et al.* 1998, Bertrand *et al.* 2000, Gaertner *et al.* 2002, Magnussen 2002). Nevertheless, numerous authors have demonstrated that several environmental variables linked to the bathymetric gradient, such as the water temperature, the salinity, or other habitat features could also strongly influence the organization patterns of groundfish assemblages (see e.g. Mahon & Smith 1989b, Bianchi 1992, Rakosinski *et al.* 1992, Perry *et al.* 1994, Auster *et al.* 1995, Demestre *et al.* 2000). It was notably the case in the Gulf of Lions

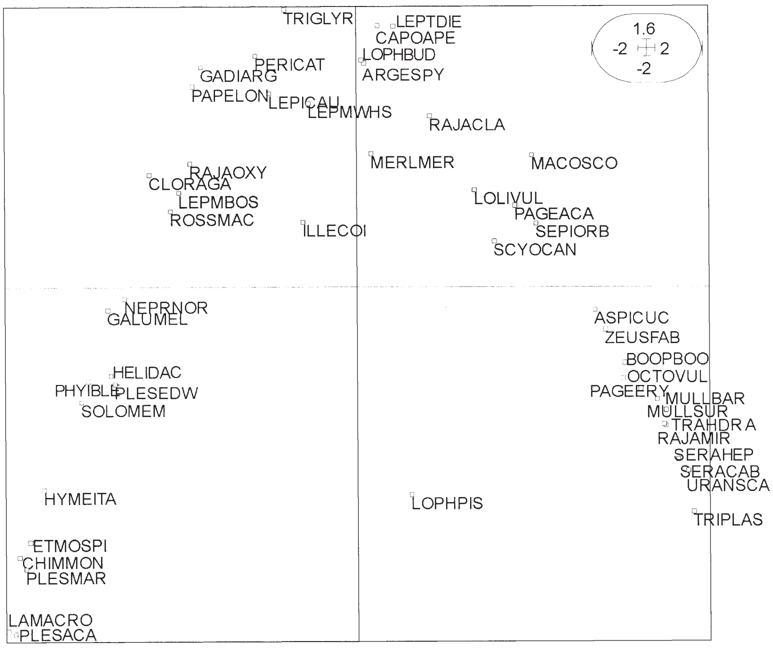

Fig. 4. – Projection of the species on the first factorial plane of STATIS compromise (axis 1: horizontal; axis 2: vertical). Species codes as in Table I.

where we previously showed from a similar faunistic list (Gaertner *et al.* 1999), that habitat descriptors, such as sediment type and macrofaunal communities explained a significant part of the organization of fishes along the bathymetric gradient. Because very few relevant data are available for the east coast of Corsica, we cannot specify which of the environmental factors were really responsible for the faunal changes we observed along the depth gradient. This knowledge would be particularly useful in this region which features by one of the lowest fishing intensity rates in the northern Mediterranean Sea (Relini *et al.* 1999).

No sub-regional heterogeneity of assemblage structure has been found in relation with latitude within the east Corsica region. In connection with the stable bathymetric boundaries between the assemblages, this homogeneity could be relevant in view of defining spatial units or ecosystem units for management. Numerous authors have shown that identifying areas with relatively homogeneous and stable species composition could be of great interest in both regulating by-catch and optimising overall catch (Tyler *et al* 1982, Mahon 1985, Gabriel & Murawski 1985, Biagi *et al.* 1989, Mahon *et al.* 1998). Furthermore, this knowledge may provide an indirect source of information about commercial fisheries organization (Weinberg 1994, Taquet *et al.* 1997). Several authors expected that mapping stable assemblages might offer a basis for predicting the composition of catches of the fishing fleets exploiting these areas (Gabriel & Tyler 1980, Bianchi 1991). Along the east coast of Corsica, where very little information is available on the fishing activity (no log-books), our results suggest that all the trawlable areas could be considered as a single biogeographical unit, possibly split up into three bathymetric sub-areas.

From a methodological viewpoint, STATIS-CoA has provided an accurate and reproducible representation of the spatio-temporal organization patterns of demersal assemblages along the east coast of Corsica. Classical approaches to examining temporal changes in assemblage structures consisted of (i) running separate multivariate analyses for each survey before drawing a visual, subjective comparison between the structures observed in each survey or (ii) carrying out multivariate analysis after pooling on a single table the data from different surveys but giving a confusing mixture of spatial and temporal effects (see e.g. Weinberg 1994, Fujita *et al.* 1995, Mahon *et al.* 1998, Tserpes *et al.* 1999, Demestre *et al.* 2000, Jukic-Peladic *et al.* 2000, Kallianiotis *et al.* 2000, Biagi *et al.* 2002). The empirical aspect of these approaches has been recognized as a major problem in ecological studies (Centofanti *et al.* 1989, Gaertner *et al.* 1998, Mahon *et al.* 1998). By providing a methodological framework suited to investigation of the reproducibility of multispecies spatial structures, STATIS-CoA offers a solution to this problem (see another illustration of this method in Simier *et al.* 2004). Its application goes far beyond the field of fishery ecology towards a range of fields of community ecology. In particular, this approach should contribute to a better understanding of the reaction of marine communities to anthropogenic and natural disturbances.

In conclusion, the present work contributes to the identification of biogeographical units, recognized as one of the key issues in Mediterranean fisheries management (Caddy 1998, Garibaldi & Caddy 1998). Our approach has made it possible to offer the first quantitative outline of the spatio-temporal organization patterns of demersal assemblages along the east coast of Corsica. These findings might be considered as a "reference state" with a view to monitoring the temporal changes in assemblage organization patterns along the east coast of Corsica in the future. In addition, the comparison of our results with similar studies carried out in more intensively fished areas – notably within the standardized framework of the MEDITS programme – could provide a basis for achieving a better understanding of the impact of fishing pressure on demersal assemblage structure. This will constitute the next step of our work

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