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POSTER THEME TAXONOMY

Opheliidae (Polychaeta) diversity on the Western Australian coast

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Since 2005 a number of exploratory cruises have taken place off the coast of Western Australia with the objective of better understanding patterns of marine biodiversity. Depths sampled were in the range 100-1000 m and investigations of non-polychaete taxa have revealed large numbers of species previously unknown in Australia, many of which are undescribed. Sampling from a coral reef biodiversity program CReefs has contributed shallow water material from some of the same latitudes. This poster presentation is a summary of Opheliidae diversity and taxonomy from the region. Taxa represented include species of Armandia, Ophelina, Polyophthalmus and Travia. Each will be described and the significance of the fauna discussed in terms of the objectives of the projects.

Deep sea Syllidae from Southern Brazil

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The deep sea invertebrate fauna of Southern Atlantic Ocean is poorly known, compared to Northern Atlantic and Antarctic waters. As a consequence of this differential sampling effort, the biota composition and the biogeographical patterns of this region are mostly unknown. Therefore descriptive studies are still of fundamental importance to the knowledge of the biodiversity and biogeography of this environment. This study presents the species of Syllidae collected from deep waters off Southern Brazil (700 - 2000m) between 21°18' S and 23°00' S at 44 stations sampled both in winter and summer of 2003, by means of a box-corer gear. This survey was conducted by PETROBRAS/CENPES (Brazilian Petroleum Company) under the scope of the "Campos Basin Deep-sea Environmental Project". Eleven species of Syllidae were identified: *Parexogone campoyi* (18 spcms; 994 - 1962m), *Parexogone wolffi* (19 spcms; 738 - 1964m), *Parexogone* sp. 1 (15 spcms; 698 - 754m), *Parexogone* sp. 2 (2 specs; 1621 - 1650m), *Sphaerosyllis* sp. 1 (17 specs; 749 - 1903m), *Sphaerosyllis* sp. 2 (1 spec.; 722m), *Syllis* cf. *aciculigrossa* (1 spec.; 749m), *Prospheosyllis isabellae* (1 spec.; 1045m), *Exogone anomalochaeta* (3 specs; 749 - 1050m) and *Anguillosyllis* sp. (7 specs; 1035 - 1654m). This is the first report of the

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genus *Anguillosyllis* and of the species *Parexogone campoyi* and *Parexogone wolfi* to the Brazilian coast.

Lumbrineridae (Annelida: Polychaeta) associated to three banks of calcareous algae (rhodoliths) in eastern Brazilian Coast with description of a new specie.

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Rhodoliths modify the physical characteristics of their environment, producing habitat that can support a rich associated fauna. The most extensive rhodoliths banks in the world occur on Brazilian continental shelf and polychaetes are the most abundant and diverse taxa in this habitat. This kind of substrate is suitable for borrowers like members of the family Lumbrineridae. The family Lumbrineridae is characterized by their simple body shape with a reduction and uniformity of their morphological features presenting over 200 described species distributed into 13 genera. They are widely distributed on marine environmental from shallow waters to abyssal depths inhabiting from mud and sand to hard substrates like reef-calcareous algae or corals. In this research, six species were described, among them, *Lumbrineris cf perkinsi* Carrera-Parra, 2001, *Lumbrineris cf setosa* Hartmann-Schröder, 1987 and *Lumbrineris cf floridana* Ehlers, 1887 are new records for the Brazilian coast, and a new species was found. The specie *Lumbrineris cf perkinsi* is distributed from Grand Caribbean Region and Panama (Pacific), *Lumbrineris cf setosa* is restricted to Victoria, Australia, and *Lumbrineris cf floridana* is restricted to Grand Caribbean region. The new species of *Lumbrineris* is similar to *Lumbrineris paucidentata* Treadwell 1921 from North Atlantic but they can be separated by mandible and maxillary apparatus morphology, hood length of simple multidentate hooks and morphology of prechaetal and poscheatal lobes from later parapodia.

Polychaeta Orbiniidae from Antarctica, the Southern Ocean, and Adjacent Waters of South America

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Orbiniid polychaetes from Antarctic and subantarctic seas and adjacent areas of South America are described based on collections of the National Museum of Natural History and

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new material from surveys conducted by the United States Antarctic Program, other U.S. Federal agencies, the international ANDEEP deep-sea surveys, personal collections from McMurdo Sound, South American materials from the Lund University Chile Expedition, and collections of José Orensanz from Argentina and Uruguay. A total of 40 species of Orbiniidae distributed in 12 genera are reported from South America and Antarctica. Nineteen species and two genera are new to science; one species is renamed. Seven new species of *Leitoscoloplos* are described together with one new combination. The *Leitoscoloplos kerguelensis* complex is reviewed and partially revised. Two new species of *Scoloplos* are described. The genus *Leodamas* is redefined; all type species of existing species are redescribed together with three new species. A new genus is established for *Naineris* species lacking uncini in thoracic neuropodia. *Naineris chilensis* Carrasco, 1977, a junior homonym of *N. dendritica chilensis* Hartman-Schröder, 1965 is renamed. *N. laevigata* is redescribed. The first species of *Califia* from shelf depths is described from South America. New morphological characters are defined including unusual setal details of thoracic uncini especially in a new species of *Orbinia* from Argentina. *Orbiniella branchiata*, an unusual subantarctic species is redefined in a new genus. Definitions of all genera of the Orbiniidae are updated to conform to recently described taxa. Several new synonymies are proposed following a reexamination of previously described type specimens. The biogeography and origins of the Southern Ocean orbiniid fauna are reviewed and compared with those of other polychaete families. A preliminary phylogenetic analysis of orbiniid polychaetes is used to support conclusions.

Two new genera of the family Onuphidae Kinberg, 1865 (Eunicida, Polychaeta)

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Two new genera are suggested for two onuphid species *Onuphis amourexii* Intes & Le Loeuff, 1975 and *Nothria willemoesii* McIntosh, 1885. Both species were assigned to the genus *Paradiopatra*, based on the presence of long pointed hoods on anterior falcigers (Paxton, 1986). Cladistic analysis of 23 species of *Paradiopatra*, 29 representatives from 16 more onuphid genera and one species of Eunicidae was performed in order to test the monophyly of *Paradiopatra*. A matrix of 56 morphological characters coded for 53 terminal taxa was analyzed under maximum parsimony optimization criteria. The resulted consensus tree (1102 most parsimonious trees with 205 steps Ci = 0.44, Ri = 0.73) revealed paraphyletic status of *Paradiopatra*. Two species (*P. amourexii* and *P. willemoesii*) appeared in the basal position to the monophyletic clade combined remained members of *Paradiopatra*, *Diopatra*, *Epidiopatra*, and *Noonuphis*. Both species differed from the rest of *Paradiopatra* members in having relatively long median antennae (longer and thicker than lateral antennae), presence rather than absence of branchiae on the posteriormost chaetigers and presence of postchaetal lobes on almost all parapodia rather than limited to

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anterior 5–11 chaetigers. Although both species demonstrated few common characters, they exhibited several unique features and did not form a monophyletic clade on the consensus tree. *P. amourexii* displayed presence of maxillae VI, eight pairs of modified parapodia, parapodial pockets on chaetigers 6–25, and only one pair of anal cirri. *P. willemoesii* can be characterized by absence of maxillae VI, presence of four pairs of modified parapodia, two pairs of anal cirri and specific tube distally curved and covered by very long and thin spines coated with mud. *P. amourexii* is known from the subtidal depths west off Africa; *P. willemoesii* widely distributed in the shallow waters in the tropical areas of western Pacific.

Capitellidae (Annelida: Polychaeta) from the Mediterranean Iberian Peninsula, Balearic and Chafarinas Islands

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A review of published literature and preserved materials from the *Museo Nacional de Ciencias Naturales, Madrid* (MNCN) and the reference collection of the Marine Biology Laboratory of the University of Valencia allow us to recognize seventeen valid species from eleven different genera of capitellids (Annelida: Polychaeta) from the Iberian Peninsula, Balearic Islands and Chafarinas Islands (SW Alboran Sea). Keys for the identification of genera and species are given, as well as diagnosis of each species with original iconography, some information about their ecology and distribution at both global and regional level. Also, this work provides the setal formula and diagrammatic representation of the capitellid taxa included in this study.

Revision of *Lysidice* (Polychaeta, Eunicidae) in the Western Caribbean Sea, with observation of reproductive features and habitat preference of different species

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Although the Eunicidae (Polychaeta) of the Western Caribbean Sea appear to be well studied, the taxonomic status of *Lysidice* has yet to be evaluated. A first attempt to revise the taxonomy of this genus is here presented, based on material collected at Carrie Bow Cay (Belize), as well as at other sites all along the Yucatan Peninsula (Mexico), representing a variety of habitat types (dead rubble corals, sponges, coralline sands, *Thalassia testudinum* meadows) and depths (0.5–20 m). The new specimens were also compared with literature

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description and records, as well as with Museum' specimens used for re-description of the type species of the genus, *Lysidice ninetta* Audouin & Milne Edwards, which has been confused with, and synonymized in the past, with many Caribbean morphotypes of *Lysidice*.

The analysis reveal that 5 species of *Lysidice* new to science occur in our material: *Lysidice caribensis* n. sp. (with all yellow aciculae and sub-acicular hooks), and *Lysidice adrianae* n. sp. (with all black aciculae and sub-acicular hooks in transition from black to yellow) are preferentially associated with dead rubble corals, while *Lysidice thalassicola* n. sp. appeared to be strictly associated with *Thalassia testudinum* meadows, as a borer in the sheaths of this seagrass. Other two species *Lysidice carriebowensis* n. sp. (with all black aciculae and yellow sub-acicular hooks) and *Lysidice phyllisae* n. sp. (with aciculae in transition from black to yellow and sub-acicular hooks yellow) are less common and have been collected only at Carre Bow Cay in association with rubble corals. Several specimens of the three more common new species, *L. caribensis*, *L. thalassicola* and *L. adrianae* were observed as mature males and females, with a schizogamic-epitokous transformation with nearly 2/3 of the body swollen and full of gametes, and with eyes extraordinarily enlarged. The ultra-structure analysis of mature spermatozoa of *Lysidice caribensis* revealed a typical "ect-aquasperm" morphology. These results point out that *Lysidice* display a complex and diversified taxonomy in the Western Caribbean, and clear habitat and also geographic separation among different species.

Chaetozone (Cirratulidae) from the Mediterranean Sea.

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Many specimens of *Chaetozone* have been recorded from the Mediterranean Sea since the descriptions and figures of the Naples fauna in one of the first comprehensive studies of polychaetes by delle Chiaje, 1823-30. Since then other species have been recorded from the Mediterranean eg *Chaetozone caputesocis* Saint-Joseph, 1894. However, there is confusion about some of the subsequent records as they are often confused with species from the North Atlantic eg *C.setosa*. It has been confirmed that *Chaetozone setosa* Malmgren, 1867 occurs in sub-littoral waters of the North Atlantic with minimum summer temperatures of 10 degrees centigrade (Chambers, Dominguez, Mair, Mitchell and Woodham et al 2007). No records of *C.setosa* have subsequently been confirmed from the Mediterranean. Recently, attempts have been made to collect benthic material from a few Mediterranean sites and describe the samples in some detail. The purpose has been to confirm the distribution of some *Chaetozone* species.

New record of the lessepsian *Syllis hyllebergi* (Polychaeta: Syllidae) in a

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southern Italian coastal lagoon (central Mediterranean Sea).

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A stable population of *Syllis hyllebergi* (Licher, 1999) has been found in a shallow bottom of the mesotrophic marine coastal lake Faro (SE Sicily), during an experimental study of community fouling on a semi-artificial substrate. A total of twenty-six core samples of both mixed sands and artificial modules were carried out from May to July 2008, between 0.2 and 1 m depth. This species was strictly tied to the natural sediment, and colonized scanty the introduced cavitory hard-type substrate. Population was rather patchy and mainly distributed in the upper and coarser sediment (first 10 cm) with greater content of shell debris; density ranged from 0.7 to 2.6 ind.dm⁻³. Fertile females were observed, but asexual reproduction was not. Morphometric assessment of most body characters indicated an increase in size, included the modal class of articles of cirri, whilst the number of falcigers per bundle was meanly lower in anterior parapodia. The present record confirmed the spreading of the species from the Levantine Sea to the southern central Mediterranean, probably step by step through similar confined transitional environments.

Two species or not two species? DNA barcoding vs interbreeding results in *Ophryotrocha labronica* Bacci & La Greca (Dorvilleidae) from Italian coasts

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Many marine organisms characterised by a widespread geographical distribution and limited dispersal capabilities are actually complexes of cryptic species with more restricted geographical ranges. Mitochondrial COI gene sequencing (DNA barcoding) was applied to assess patterns of genetic variability in populations of *Ophryotrocha labronica* (Dorvilleidae) from three Mediterranean biogeographical zones: the northern Adriatic Sea, the Ligurian Sea and the Ionian Sea - Strait of Sicily. Sequencing of a 619 bp portion of the COI gene identified a total of 40 haplotypes of which only four were shared by more than one biogeographical zone. The median-joining network of haplotypes showed the presence of two distinct haplogroups, characterised by a different, though partially overlapping, geographical distribution. The average sequence divergence between the haplogroups was 15% (uncorrected p-distances), whereas the average divergence within each haplogroup was far more lower (1 and 0.1%). Bayesian, maximum likelihood and maximum parsimony

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based phylogenies were consistent in supporting a clear reciprocal monophyly of these haplogroups within the *O. labronica* group. The strong genetic divergence between the two *O. labronica* haplogroups is consistent with levels of divergence expected in inter-species comparisons. These results apparently clash with the lack of reproductive barriers reported for populations sampled along Italian coasts. It is known that, within *O. labronica* group, the process of speciation requires several stages before complete reproductive isolation, but the levels of genetic divergence associated to each steps are unknown. The complementary use of genetic analysis and cross experiments on strains from distinct geographical localities will help to elucidate the relationships and the evolutionary history of the *O. labronica* group, as well as other species with similar eco-biological and life history traits.

A Review of the Uncispionidae including the Description of a New Species of *Uncispio* from Wales

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The family Uncispionidae is represented by only 2 genera, *Uncispio* Green, 1982 and *Uncopherusa* Fauchald & Hancock, 1981. Each genus contains only a single species, *Uncispio hartmanae* Green, 1982 and *Uncopherusa bifida* Fauchald & Hancock, 1981. Neither species has been recorded from Britain or elsewhere in the northeast Atlantic region before. A new species of *Uncispio* was identified from a deep (127-169 m) boulder clay habitat in the southern Irish Sea, west of Anglesey. The species was abundant (200-300 specimens per 0.2m²) and dominated samples that otherwise contained a very sparse fauna. In one sample, the new species accounted for over 80% of the fauna. All three species of Uncispionidae are reviewed here.

Description of two new species of *Malacoceros* and *Rhynchospio* (Spionidae) from the Grand Caribbean region

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Two new species of spionids are described from the Caribbean Sea, *Malacoceros cariacensis* n. sp. from Venezuela and *Rhynchospio harrisae* n. sp. from Guana in the Virgin Islands, British Virgin Island. *Malacoceros cariacensis* n. sp. can be differentiated by the shape of the prostomium, which has two short frontal horns and the posterior portion laterally prolonged into a faintly demarcated, double-looped nuchal organ, extending to the base of setiger 2, a reduction in the size of setiger 1, the absence of body pigmentation, and the number of apical teeth on the hooded hooks. *Rhynchospio harrisae* n. sp. differs from

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other species of the genus in that the peristomium is moderately developed with low lateral wings, and the anterior notopodial setae are arranged in two rows with a superior tuft of capillaries. A key to *Malacoceros* species worldwide is provided.

***Minuspio* (Polychaeta: Spionidae) from the Grand Caribbean region**

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Abstract – *Minuspio* species from Grand Caribbean region are reviewed based on museum collection and new material collected in region. The study of new material from the Grand Caribbean region, resulted in 3 new species. Further, specimens identified as *Minuspio cirrifera* (Wien, 1883), and *M. multibranchiata* (Berkeley, 1927) from the Grand Caribbean region, two apparently widely-distributed species were re-examined, and compared with material collected near to the type locality; these species is not found in the region and with the local specimens are described 3 new species. The records of *M. perkinsi* (Maciolek, 1985) from the Grand Caribbean region is confirmed.

Spionids associated with molluscs of commercial interest in northern Argentine Patagonia

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Spionid polychaetes are often associated with other marine organisms including molluscs of commercial interest, both cultivated and harvested from natural populations. Some species occur at the surface of the shell as epibionts, while others bore into the shells. Heavy infestation by spionids may reduce growth rate and commercial value of valuable shellfish species. Most common shell borers are among polydorins, species of *Polydora* and related genera. The major objective of our project is to study the diversity, distribution, prevalence and damage caused by spionids to scallops (*Aequipecten tehuelchus*), mussels (*Mytilus edulis* ssp., *Aulacomya atra*) and oysters (*Ostrea puelchana*) commercially harvested in the gulfs of northern Argentine Patagonia (San Matías, San José and Nuevo). Here we present preliminary results about the morphology and taxonomy of polydorins found as epibionts or shell borers on those commercially valuable mollusks.

SEM structure of Nephtyidae chaetae (Annelidae: Polychaeta)

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Chaetal structure of some Nephtyidae species from the North Polar ocean has been studied using SEM: *Aglaophamus malmgreni*, *A. rubella*, *Micronephthys minuta*, *M. neotena*, *Nephtys caeca*, *N. ciliata*, *N. cirrosa*, *N. hombergii*, *N. kersivalensis*, *N. longosetosa*, *N. paradoxa*, *N. pente*, and *N. rickettsi*.

All nephtyids chaetae are simple, noto- and neurochaetae are similar. There are four main types of chaetae: capillary, barred, the chaetae with spines and lyrate (last are absent in investigated species). Chaetae looks like smooth under the light microscope usually have very little chaotically scattered spines under SEM, but truly smooth chaetae are present as well. All barred chaetae are preacicular. Chaetae with spines and capillary are mainly postacicular.

Bases of chaetae with spines are smooth, distally spines appear at first sporadic chaotically scattered, gradually more dense and still irregular. In the most complicated (spinose) case spines gradually join at first in irregular and then regular rows and form "combs". Distally the number of spines in such «combs» can increase from 3-4 up to 20-25. In old chaetae such «combs» can fall off as a whole unit. After complete developing chaetal morphology changes in reverse order up to smooth tips. Spinose chaetae of different species and genera can differ in number of spines in "comb", distance between "combs", and size of spines. Some species have "combs" with single spine (so called serrated chaetae). Other species have no distinct "comb" at all.

New species of Cirratulidae from the northern Gulf of Mexico

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Although heavily investigated by the oil and gas industry, the benthic infauna of the deep-water Gulf of Mexico remains largely unknown and undescribed. The present study describes seven species of bitentaculate cirratulids belong to the genus *Aphelochaeta* (1 species), *Chaetozone* (4 species), *Monticellina* (1 species), and *Tharyx* (1 species). Samples were collected at 47 stations using a boxcore from depths of 229 m to 955 m in the northern Gulf of Mexico, south of Louisiana. The material was collected as part of an environmental baseline assessment for two oil rigs and two pipelines during 2008 and 2009. The large bodied *Aphelochaeta* sp.1 was among the numerical dominant species at several stations. At a single station this species comprised more than 40% of identified organisms in the sample. The four species of *Chaetozone* occurred periodically throughout the samples in low densities. *Monticellina* sp. 1 and *Tharyx* sp. 3 were abundant at only a few of the sampled stations. These species can be separated superficially based on overall body shape, length of peristomium, as well as setal shape and color. These new species are compared to other cirratulids reported from the Gulf of Mexico and the western North Atlantic.

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Magelonidae (Annelida, Polychaeta) from Brazil with the description of a new species and a revision of taxonomic terminology

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The Magelonidae includes 63 valid species in three genera: *Magelona* (60 spp), *Meredithia* (2 spp), and *Octomagelona* (1 sp). *Magelona papillicornis*, *Magelona riojai*, *Magelona variolamellata*, *Magelona posterelongata*, *Magelona nonatoi*, *Magelona crenulata* and at least one new species are currently known along the 8,000-km Brazilian coast. However, little is known about their intraspecific morphological variations and geographic distribution. By examining a large collection of magelonids from museum collections, plus newly collected material, we were able to better define regional species, describe new taxa, and revise, update and systematize the routine taxonomic terminology. We suggest herein a default terminology strictly based on morphological attributes identified *a priori* as homologous. This novel terminology is applied to the description of a new species.

The Southern Ocean Annelid Project (SOAP). A gathering of scientists to wash away doubts about identification of Antarctic polychaetes

Brigitte Ebbe* and participants of a joint CeDAMar/CAML workshop

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The benthos of the Southern Ocean is one of the remotest and least explored group of organisms on the planet, especially in deeper waters. Consequently, every sample taken of the Southern Ocean seafloor contains many new species, many of them still awaiting formal description even some 30 to 40 years after the sampling event. Polychaetes account for a relevant amount of the benthic biodiversity of the Southern Ocean (about 800 nominal species), and respect to their high diversification and wide distribution and occurrence in various habitat from shallow to very deep waters, they are still poorly known and largely overlooked. During the workshop “Southern Ocean Annelid Project (SOAP)” held in Woods Hole (USA) in March of 2010 (funded by CeDAMar/CAML and Census of Marine Life), 19 senior and junior specialists came together for a week to compare material assigned to selected polychaete families, exchange ideas on suitable morphological characters for generic and species discrimination, and compile distributional data. Within only five days, more than 30 putative new species were discovered in nine families. Geographic as well as bathymetric range extensions were identified. While formal descriptions, as well as revision of specific taxa, will be compiled in a special publication in 2011, preliminary results are already presented here, hopefully encouraging similar workshops in other geographic

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areas.

Multitentaculate Cirratulidae (Polychaeta) from Brazil

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Brazilian coastal line is characterized extended sand beaches and large estuaries. Most of these environments have mangroves, salt marshes or non-vegetated tidal flats with a highly diverse flora and fauna. The lack of specialists and the extended littoral have produced poor knowledge of biodiversity in Brazil and most parts of Latin America. One of the most neglected groups of polychaetes is Cirratulidae. The group is roughly divided in bitentaculate and multitentaculate. *Protocirrinieris* is one of the multitentaculate genera and a few species have been described, mostly from the Northern Hemisphere. Only one Southern species has been described for Argentine waters, and recently *Protocirrinieris socialis* has been mentioned in Brazilian waters in a congress. In a recent survey one of us (W.M.) have found several species (up to 16) of Cirratulids dominating in high-salinity sites of Todos os Santos Bay, Brazil (13° 00' S, 38° 30' W). An unexpected large number of *Protocirrinieris* has been discovered:

Protocirrinieris sp. 1 with prostomium conical, rising from the peristomium. Peristomium triannulated, with 3 to 4 sub annulations each annuls. First 4 chaetigers also with sub-annulations. Tentacular filaments (about 5-6 in each pack) rising in chaetigers 3-4; branchiae from first chaetiger to middle region. Posterior region dorsally expanded with anus terminal.

Protocirrinieris sp. 2 with prostomium very wide and short. Peristomium triannulated, short (as 4 chaetigers). Tentacular filaments short between chaetigers 3-4 (5-10 per pack); branchiae from first chaetiger to the end. Posterior region laterally expanded with pygidium conical and anus terminal.

Protocirrinieris sp. 3 with prostomium conical, short. Peristomium short, triannulated. Tentacular filaments between chaetigers 3-4. Branchiae from first chaetiger to posterior end. Posterior region acute, not inflated, with anus terminal.

Methyl green staining pattern is different in each one.

Eusyllinae and Exogoninae (Polychaeta: Syllidae) for the Mediterranean coasts of egypt, together with the description of one new species

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In this paper 18 species of the subfamilies Exogoninae and Eusyllinae (Syllidae, Polychaeta) are reported from the Mediterranean Egyptian coasts, 8 of them are new records for the Egyptian Mediterranean waters (*Odontosyllis fulgurans* (Audouin and Milne Edwards, 1833), *Syllides japonicus* Imajima, 1966, *Salvatoria clavata* (Claparede, 1863), *Salvatoria euritmica* (Sardá, 1984), *Sphaerosyllis glandulata* Perkins, 1781, *Parapionosyllis labornica* Cognetti, 1965, *Sphaerosyllis* sp. San Martín 2003, *Prosphaerosyllis* sp. San Martín 2003. Five species were reported previously.

Four species are new record for Mediterranean Sea: *Palposyllis prosostoma* Hartmann-Schröder, 1977; *Paraehlersia weissmaniodes* (Augener, 1913), *Streptosyllis compoyi* Brito, Núñez and San Martín, 2000; and *Exogone africana* Hartmann-Schröder, 1974); *P. weissmaniodes* and *Exogone africana* are two widely distributed Indo-Pacific species, so they could be considered as Lessepsian migrants. Finally, one new species is described, *Parapionosyllis egyptium*.

Sand-reefs maker at Brazilian coastline: notes on a particular Sabellariidae

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This report on geographical morphology of Brazilian *Phragmatopoma caudata* Krøyer in Mörch, 1863 is an effort to add information to the typical description and worldwide revisions. *Phragmatopoma caudata* is a type species originally described from West Islands, however, it is distributed on intertidal rocky shores and shallow waters in the Western Atlantic, between Florida (US) and Santa Catarina (Brazil). Some species were registered in the Pacific, even though they were never identified. Others were added to the genus mainly by opercular setae, or paleae, morphological dissimilarities, but the lack of studies on consistent morphological discrepancy, the close reproductive mechanisms described, and the evidence of wide distribution should be basis to the synonymies created. The last taxonomic revision considered four species as valid; *P. caudata*, *P. attenuata*, *P. californica* and *P. virgini*. Nevertheless, the type species has slight morphological description which makes the species identification difficult. Afterward, complementary details of *P. caudata* illustrating other relevant characters were provided. To test *P. caudata* zoogeographic morphological homogeneity, a comparative study among populations was carried out alongside four geographical regions separated by hundreds of kilometers, and which samples were retrieved at two locations. Chaetal and non-chaetal morphologies and structures from opercular crown and arrangement, thorax, parathorax, abdomen and pygidium of a hundred of specimens were analyzed. The results show geographical and local morphological variability in these populations, and to highlight it, scanning electron

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images are presented. Promise reasons for this discrepancy are discussed. In spite of paleae richness morphology absolutely sustain species hypothesis, they should be considered adjacent to the mechanisms through which the character state is originated and became fixed on the populations.

Four new records of Syllidae (Polychaeta) in Brazil

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Despite being one of the largest families of Polychaeta, the fauna of Syllidae is poorly known in Brazil, especially considering the extension of the Brazilian coast (~7400 Km). Around 85 species are currently reported for the country, but this is a low number, considering the diversity of syllids in other localities. However, the state of knowledge on the Brazilian fauna of syllids has improved in recent years, as more taxonomic studies were conducted in the country. This resulted in several new records and species which are new to science. We present herein four new occurrences of syllids for the Brazilian coast, each species belonging to a different subfamily, except for the recently erected Anoplosyllinae Aguado & San Martín, 2009. *Proceraea okadai* (Imajima, 1966), subfamily Autolytinae, is characterized by the pigmentation pattern with four longitudinal dark lines along the dorsum, and by the pharynx with a trepan of 18 teeth, 9 large alternating with 9 small. *Pionosyllis kerguelensis* (McIntosh, 1885), subfamily Eusyllinae, is a large species, with ~30 falcigers per parapodium, each parapodial lobe with a distal, large papilla, and thick, distally rounded, protruding aciculae. *Exogone (Sylline) simplex* Hartmann-Schröder, 1960, subfamily Exogoninae, is characterized by only having simple chaetae, due to loss of the blades. Finally, *Syllis westheidei* San Martín, 1984, subfamily Syllinae, presents a pigmentation pattern with dark spots on dorsum, sometimes forming an “8” on the dorsum of each anterior segment, elongate dorsal cirri, falcigers with bidentate blades, with subdistal tooth smaller than distal one, spiniger-like chaetae absent.

First occurrence of the genus *Perkinsyllis* San Martín, López & Aguado, 2009 (Eusyllinae) in Brazil, with the description of a new species

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The subfamily Eusyllinae is the most heterogeneous group within the Syllidae and, as pointed out by recent papers which investigated the phylogeny of the family, it is clearly non-monophyletic. Within the subfamily, the genus *Pionosyllis* Malmgren, 1867 was, for a long time, one of the largest and most diverse, but a thorough revision of the group was

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still missing. As part of an effort to solve that great heterogeneity of *Pionosyllis*, the genus *Perkinsyllis* San Martín, López & Aguado, 2009, was erected to accommodate a concise group of species that had been priorly assigned to *Pionosyllis*, characterized by presenting long antennae, peristomial and dorsal cirri, and aciculae distally expanded, bilobed. We present herein the first occurrence of *Perkinsyllis* in Brazilian waters, with 3 species registered, one of them new to science. *Perkinsyllis augeneri* (Hartmann-Schröder, 1979) presents dorsal simple chaetae unidentate, with coarse spinulation, blades of falcigers bidentate, with rounded distal tooth and short spinulation, and dorsalmost compound chaetae spiniger-like, some midbody chaetae present filiform blades. *Perkinsyllis koolalya* (San Martín & Hutchings, 2006) possesses dorsal simple chaetae distally bifid, with short spinulation, and blades of falcigers bidentate with long spinulation, distal spines reaching beyond subdistal tooth. *Perkinsyllis* sp. n. also presents dorsal simple chaetae distally bifid, with short spinulation, and blades of falcigers bidentate with long spinulation, distal spines reaching beyond subdistal tooth; furthermore, *Perkinsyllis* sp. n. presents 1-2 dorsalmost compound chaetae spiniger-like, bidentate, with short spinulation.

Record of *Lamellibrachia* (Polychaeta, Siboglinidae, Vestimentifera) from a deep shipwreck in the Western Mediterranean Sea

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Siboglinidae represent one of the most intriguing clades within polychaetes, from both a phylogenetic and an ecological point of view. Vestimentifera, within Siboglinidae, represent one of the most typical organisms associated with reducing habitats such as hydrothermal vents and cold seeps, due to their obligate symbiosis with chemoautotrophic bacteria. Vestimentifera are represented by 9 genera and about 15 species, with the genus *Lamellibrachia* showing the highest species radiation with about 9 species, some of which still un-described and identified only at molecular level. In the Mediterranean Sea, *Lamellibrachia* sp. have been recently reported in the Eastern basin from mud volcanoes off the coast of Crete and Turkey (Olu-Leroy et al. 2004) and from a deep shipwreck off the coast of Crete (Hughes & Crawford, 2009). Here we report the first record of *Lamellibrachia* in the Western Mediterranean, where these giant worms were sampled from the shipwreck of the liner "Catania", sunk in 1917 at 500 m depth off the coast of Cetraro (Southern Tyrrhenian Sea, Italy). Tubes have been digitally recorded *in situ*, as well as their sampling by the grabbers of a working class ROV equipped with a collecting basket. Twenty-seven entire tubes were collected from the upper part of the shipwreck' bow, ranging from 23 to 60 cm in length and from 0.6 to 13 mm in diameter. Clear annulations were present near the tube openings, while on various tubes the scleractinian *Desmophyllum cristagalli* was settled. Only two specimens of *Lamellibrachia* sp. were found, both lacking the final posterior portion; the obturaculum was 13 mm long and with 3-6 sheath lamellae and 8-14 branchial lamellae. A small piece of the vestimentum from both specimens was used for DNA extraction and sequencing of the mitochondrial COI marker for comparison with GenBank data of known species of *Lamellibrachia*. COI sequence suggest a close similarity with specimens collected in the

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Eastern Mediterranean (GenBank EU046616) and belonging to a new species (Southward et al., submitted). It needs still to be clarified which type of organic source the obligate symbiotic bacteria of these worms may use for chemosynthesis. The presence of various demersal fishes, documented in ROV videos, as well the occurrence of scleractinians on the tubes testify that the environment around the “Catania” shipwreck is not, at least persistently, influenced by sulfur emissions.

Two new species of *Branchiosyllis* (Polychaeta: Syllidae) from Mexican Pacific.

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Branchiosyllis differs of other syllids by possess claw-shaped falcigers. At the moment there are considered 18 valid species of these genus, of those species only five have been reported for Mexico: *Branchiosyllis diazi* Rioja, 1958, *B. exilis* (Gravier, 1900), *B. oculata* Ehlers, 1887, *B. pacifica* Rioja, 1941 and *B. salazari* Ruiz-Ramírez & Harris, 2008. During diverse sampling campaigns in the Mexican Pacific, were located some specimens of other two species of *Branchiosyllis*, non previously known for the science. *Branchiosyllis* sp. 1 was collected in La Paz Bay, among rocks of the coast area, is characterized to possess sub-cylindrical body anteriorly, and dorsoventrally flattened in median and posterior regions; the palps are divided by a dorsal groove appearing bilobed; dorsum with first two segments strongly pigmented, attenuating toward posterior part; without branchiae; anterior parapodia with bidentate falcigers in dorsal position, ventral ones unidentate, on median parapodia all falcigers unidentate, dorsal ones with a line of thin teeth; posterior parapodia with claw-shaped falcigers. *Branchiosyllis* sp. 1 differs from other species in the color pattern, the shape and distribution of falcigers along body, and in that is the only species of *Branchiosyllis* that presents sub-cylindrical body anteriorly and dorsoventrally flattened on middle and posterior region. *Branchiosyllis* sp. 2 was found in *Phragmatopoma californica* beds of Manzanillo, Colima, and Isla María Madre, Nayarit, on algae and sponges. This species have cylindrical body, without color pattern; branchiae absent; bidentate dorsal falcigers on anterior and median parapodia; claw-shaped falcigers since median parapodia. *Branchiosyllis* sp. 2 has been reported for the Mexican Pacific as *Branchiosyllis exilis* (Gravier 1900) described from Read Sea; differ from the nominal species, in the falciger distribution, shape of antennae, tentacular cirri and dorsal cirri, as well as in the number and shape of parapodial aciculae.

The Genus *Terebellides* Sars, 1835 (Polychaeta, Trichobranchidae) off the Atlantic Coast of South America, with the Description of a New Species from Northeastern Brazil

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A new species of *Terebellides* was found among polychaete material collected in the Reserva de Desenvolvimento Sustentável da Ponta do Tubarão (RDSPT), a state reserve in Rio Grande do Norte, northeastern Brazil. In order to identify it type material of nearly all other species of *Terebellides* reported from the Atlantic coast of South America was examined. These species are: *T. anguicomus* Müller in Grube, 1858, *T. carmenensis* Solis-Weiss, Fauchald and Blankensteyn, 1991, *T. lanai* Solis-Weiss, Fauchald and Blankensteyn, 1991, *T. malvinensis* Bremec and Elias, 1999, *T. sepultura* Garraffoni and Lana, 2003, *T. klemani* Kinberg, 1867 and *T. totae* Bremec and Elias, 1999. However, the original descriptions of these species present several problems and in some cases they do not match the characters of the corresponding type material. For this reason, the description of the new species from Rio Grande do Norte and re-descriptions of all these taxa are herein provided. The most useful characters to distinguish between these species are the morphology of the scoop-like process on the lower lip, the degree of deflection of the body on segment 3, the morphology of the branchiae, the segment on which notopodia first appear, the morphology of neurochaetae throughout the body, and the presence of a dorsal hump on segment 9. A dorsal hump on segment 9 only occurs in three species of *Terebellides*, all of them restricted to the Atlantic coast of America from Mexico to Brazil: *Terebellides* sp. n., *T. anguicomus*, and *T. carmenensis*. *Terebellides carmenensis* is distinguished from *Terebellides* sp. n. and *T. anguicomus* by having the first pair of notopodia on segment 3, while both the others have it on segment 4. *Terebellides* sp. n. and *T. anguicomus* differ from each other mostly in the morphology of the scoop-like process and the neuropodial spines of segment 8.

Taxonomic characters and taxonomy of Ampharetidae (Polychaeta)

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There is little doubt that the systematics of Ampharetidae is in very poor condition. Almost 100 genera of Ampharetidae have been described for less than 300 species. It seems as if polychaetologists follow the rule that “if you can distinguish two animals, they belong to different genera; if not, to different species.” I have investigated 40% of valid species and 25% of types (all Russian collections, collections of Natural History Museum, London and Zoologisches Institute and Zoologisches Museum, Universität Hamburg and some others). Wherever possible, individual variation in external morphological characters (both ones in present use and ones proposed for use at generic or specific level) has been investigated. It is shown that some of the characters are of specific rather than generic

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value. It is suggested that within the subfamilies of Ampharetidae, generic classification be based on the following characters: 1) Ampharetinae: type of prostomium, type of notopodial modification, presence/absence of anterior and posterior dorsal crests and circular band, presence/absence of a pair of well developed nephridial papillae behind the branchiae, modified neuropodia, jaws, uncini (type and character of change along the body), separation of thorax; 2) Melinninae: presence/absence of dorsal hooks and dorsal crest. Characters such as number of thoracic setigers and uncinigers, structure of branchiae (number and shape), type of buccal tentacles, most of abdominal characters, and within Ampharetinae, degree of development of paleae, number and position of thoracic setigers with modified notopodia, and within Melinninae presence of buccal tentacles of different size should not be used for this purpose. As a result, a drastic reduction of the number of genera is proposed. Within some “new big” genera variation of some characters have unique character of variation.

Deep-water species of *Ophelina* in the Norwegian Sea, with description of a new species

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The genus *Ophelina* is well represented in the deep-water fauna of the Norwegian Sea. The present study is based on material from a wide range of localities covering a depth range of 575 – 3900 m. *Ophelina* spp. were present in 125 of 165 examined samples with approximately 20.000 specimens. Six species level taxa were identified. The most abundant species, *Ophelina* “A”, with 38 chaetigerous segments is here newly described. *Ophelina* “B” (25 chaetigers) and *Ophelina* near *cylindricaudata* (28 chaetigers) are diagnosed, but not given specific names due to insufficient material. Taxonomic comments are given on *Ophelina cylindricaudata* Hansen, 1878, *Ophelina helgolandiae* Augener, 1912 and *Ophelina abranchiata* Støp-Bowitz, 1948.

Ophelina “A” sp. nov. was recorded in 73 samples between 800-3900 m depth with more than 18.000 specimens. It is the only species of *Ophelina* found deeper than 2000 m. *Ophelina cylindricaudata* and *Ophelina abranchiata* are both widespread and common in samples from about 600 m to about 1700 m and 2000 m depth respectively. *Ophelina helgolandiae*, originally described from deep water north of Spitsbergen and never recorded since, was found in 11 samples. The species seems to be widespread in the Norwegian Sea, recorded from off western Norway, north of the Faroe Islands and north of the island of Jan Mayen, down to about 1300 m depth. *Ophelina* “B” is represented by 14 specimens from three different samples off western Norway (600-1300 m), whereas *Ophelina* near *cylindricaudata* is only recorded from a single sample off East Greenland in 1700 m depth.

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Two new endosymbiotic species of *Haplosyllis* (Polychaeta: Syllidae) from the Indian Ocean, with the re-description of *H. djiboutiensis* from the Persian Gulf

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The northernmost regions of the Indian Ocean are regarded as biodiversity hot spots, with the faunistic studies in the region (polychaetes included) often encompassing a large number of endemic species, especially in the Red Sea (e.g. Wehe & Fiege 2002).

The previous knowledge on *Haplosyllis* for this region was confusing, with *H. djiboutiensis* being the only species originally described from the area. This species was later synonymised with *H. spongicola* (Licher 1999; Wehe & Fiege 2002), which in turn has been widely reported all along the region (Amoureux 1983; Amoureux *et al.* 1980; Ben-Eliahu 1972; 1977; Ben-Eliahu & Safriel 1982; Fauvel 1919; 1927; 1955; Hartman 1974; Hartmann-Schröder 1960; Kiseleva 1971; Mohammad 1976; 1980; Monro 1937). Nevertheless, Magnino & Gaino (1998), and Magnino *et al.* (1999), already discussed about the morphological differences between the populations of "*H. spongicola*" associated to the sponges *Theonella swinhoei* Gray, 1868 and *Liosina paradoxa* Thielle, 1899, from the Red Sea and the Indian Ocean, which were marked enough, not only to distinguish both populations from each other, but also from *H. spongicola* and *H. djiboutiensis*. Accordingly, these specimens are herein illustrated, compared and described as new species. In addition, the description of *H. djiboutiensis* is complemented with new data on its intra-specific chaetal variability, reproduction and ecology and the specimens from the Persian Gulf are compared with those from nearest areas.

Chaetae of Terebellidae (Polychaeta)

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We studied taxonomical value of Terebellidae chaetae for generic diagnostic. Following 32 species (20 genera) have been studied using SEM: *Amphitrite affinis*, *A. cirrata*, *A. figulus*, *A. grayi*, *A. groenlandica*, *Amphitritides gracilis*, *Ariacama proboscidea*, *Axionice flexuosa*, *A. maculata*, *A. mirabilis*, *Baffania hesslei*, *Eupolymnia nebulosa*, *E. nesidensis*, *E. trigonostoma*, *Lanassa nordenskjoldi*, *L. venusta*, *Lanice conchilega*, *Laphania boeckii*, *Leaena ebranchiata*, *Loimia* sp., *Nicolea venustula*, *N. zostericola*, *Paramphitrite birulai*, *Phisidia aurea*, *Polycirrus arcticus*, *P. fedorovi*, *Proclea graffi*, *Streblosoma bairdi*, *Thelepus cincinnatus*, *Terebellides stroemi*, *T. williamsae*, *Trichobranchus gracilis*. Whenever was possible type species from type localities have been studied.

Notochaetae are rather uniform. The main difference is presence/absence of spines and

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degree of the development of the last. However it has been found a couple of myths concerning to their structure.

1. According to accepted in literature opinion (Fauvel, 1927; Fauchald, 1977; Hartmann-Schroeder, 1996 and etc.) Amphitrite and Eupolymnia differ by presence (first) or absence (second) of notochaetal spines. However all studied specimens of both genera, including topotypes of type species have notochae with spines.

2. Axionice spp. and Nicolea spp. also have также notochae with spines contrary to accepted in literature generic diagnosis.

Neurochaetae are more different and more informative for generic taxonomy, however we have found very similar uncini in different genera. All three subfamily (Terebellinae, Trichobranchiae and Polycirrinae) have very specific uncini. Uncini of Terebellinae can be grouped in following types (1) with few large teeth in transversal row (Nicolea, Eupolymnia spp., Thelepus); (2) numerous teeth of different size in numerous rows (Amphitrite, Amphitritides, Artacama, Axionice, Baffinia, Eupolymnia spp. Lanice, Lanassa, Laphania, Leaena, Paramphitrite, and abdominal of Trichobranchinae); (3) with numerous large teeth in single row, like in Ampharetidae (Loimia); (4) with numerous teeth of similar size in numerous (at least six) rows (Proclea, Phisidia). Taking into account our data a new drastic revision of the family is badly necessary.

Levinsenia of California: A review with a description of new species.

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The genus *Levinsenia* (Paraonidae: Polychaeta) is reported from world-wide locations and broad depth ranges. There are three described species of *Levinsenia* Mesnil 1879 reported in California waters: *Levinsenia gracilis* (Tauber 1879), *L. oculata* (Hartman 1957), and *L. multibranchiata* (Hartman 1957). *Levinsenia gracilis* is widely reported from world-wide locations and broad depth ranges. The description of *Levinsenia gracilis* is revised based on examination of a syntype and specimens from the north Atlantic, California, and other parts of the world. Specimens of *Levinsenia oculata* and *L. multibranchiata* are reviewed and compared to type material. Two additional species of *Levinsenia* are newly described. A taxonomic discussion and a key to California species are presented.

A new genus and species of Syllidae (Annelida: Polychaeta) from off Norway with unusual morphological characters and uncertain systematic position

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In this paper the description of *Acritagasyllis longichaetosus*, an enigmatic genus and species of Syllidae (Polychaeta), is given. The new genus is characterized by lacking palps, eyes, and median antenna, having a single pair of tentacular (peristomial) cirri, distinct ventral cirri fused all along their length to parapodial lobes, slender, coiled pharynx without trepan but with a pharyngeal tooth, and compound chaetae with long shafts, distally enlarged and spinose, and long, filiform blades, quite similar to those of the members of the family Phyllodocidae. These very unusual characters are unique among the syllids. Some characters are close to those of the Autolytinae, but it does not fit in this subfamily, being an “incertae sedis” among the genera of Syllidae.

A new species of *Raphidrilus* (Polychaeta: Ctenodrilidae) from Oahu, Hawaii.

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A new species of *Raphidrilus* (Polychaeta: Ctenodrilidae) is described from Oahu's shallow waters. This new species is the most abundant benthic organism on *Gracilaria salicornia* muds, a successful invasive alga on Oahu's reef flats. This species is also commonly found in low abundance adjacent to ocean outfalls in Barbers Point and Sand Island, south shore of Oahu. Since the type series of *Raphidrilus nemasoma* Monticelli, 1910 is believed to be lost or never kept, *Raphidrilus* sp. nov. is considered new based on characteristics observed under light microscope and compared to the *R. nemasoma* descriptions. *Raphidrilus* sp. nov. differs from *R. nemasoma* on the smaller body size (2 – 4 mm); prostomium pear-shaped followed by a short peristomium annulation only seen dorsally; 1 – 3 achetous segments between the peristomium and chaetiger 1; proboscis inflated and found partially everted in all specimens analyzed; digestive tube clearly divided in three parts, an anterior and cylindrical esophagus present until chaetiger 4, a medium inflated stomach comprising a variable number of chaetigers, and a posterior coiled intestine, comprising the last third of the body; and no male phase. The characteristics observed under SEM such as the morphology of nuchal and proboscideal organs, capillary serrations, and anal cilia, are described and may be useful as specific value in the future. The description of this new species reinforces the distinctness between the genera *Raphidrilus* and *Raricirrus*. Therefore, *Raphidrilus* species have the heart body always present in only one chaetiger (chaetiger 4), anterior segments distinct dorsally, and an indistinct posterior end. The morphology of the nuchal organs and the presence of coarsely serrate capillaries should no longer be a generic value to separate *Raphidrilus* from *Raricirrus* species.

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Nereididae from hydrothermal vents and cold seeps in the Pacific

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With more than 530 species in over 40 genera the Nereididae are one of the most speciose polychaete families. Nereididae are also widely distributed and occur in a wide variety of habitats including freshwater ponds high above sealevel and at great distance from the coast. They can even be found in rice fields and phytothelmas of Bromeliaceae. Several species have been recorded from bathyal and even hadal depths but only two species have so far been recorded from hydrothermal vents and none from cold seeps. While *Nereis piscisae* appears to be restricted to the Juan de Fuca Ridge in the NE Pacific, *N. sandersi* has been recorded from the Guaymas Basin, the Galapagos Rift, and along the East Pacific Rise north and south of the equator. Based on specimens collected during cruises of RV Sonne *N. sandersi* is here newly recorded from hydrothermal vents in the N Fiji Basin and hydrothermal vents and cold seeps in the Lihir Basin in the SW Pacific at depths of 1999-2002 m and 1474-1577 m, respectively. *N. piscisae* was collected from cold seeps along the Cascadia Margin off Oregon at depths of 542-635 m. Because our specimens of both species show differences in chaetal arrangement of the neuropodia compared to the original descriptions, the chaetal arrangement is redescribed based on comparison with the holotypes of both species.

In the Lihir and N Fiji Basin heteronereis forms were collected at depths between 1480-2003 m presumably belonging to *Nereis sandersi*. Morphological modifications are described and illustrated.

Diversity of the Serpulidae in the vicinity of Rovinj (Northern Adriatic Sea)

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The Mediterranean is an almost completely enclosed sea characterized by special hydrographic conditions. During its geological history the fauna of the Mediterranean experienced cycles of extinction and subsequent restocking by the east Atlantic fauna via the Strait of Gibraltar. Today the fauna is considered part of the temperate to subtropical eastern Atlantic fauna. Earlier investigations recorded a decline in species diversity along

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a geographic gradient from the western to the eastern Mediterranean which has been confirmed for the Aphroditoidea and Serpulidae among the Polychaeta. As a continuation of earlier investigations on serpulids in the Mediterranean in general and in order to collect additional data on their diversity and distribution in the different basins of the Mediterranean in particular, 120 samples were analysed which were taken mainly by dredging from shallow waters in the vicinity of Rovinj (Northern Adriatic Sea) during the years 1964-2008. These samples comprised 12 serpulid taxa representing 8 genera. The highest diversity of species was found at Banjol, a small island southwest of Rovinj. *Pomatoceros triqueter* appeared to be the dominant species. Our findings and the respective records in the literature show that the serpulid fauna of the Adriatic Sea comprises only a fraction (26 species, i.e. 46%) of the total number of serpulids known to occur in the Mediterranean (56 including 6 endemic species and 6 Lessepsian Migrants). The diversity of serpulids in the Adriatic Sea is also lower compared to the Western Mediterranean (42 species) and the neighbouring Ionian Sea (39 species). Besides variations in sampling effort explanations for this observation can possibly be found in the fact that the Adriatic Sea is largely a shallow cul de sac which receives the highest freshwater input of all Mediterranean basins.

Portuguese *Magelona* (Polychaeta: Magelonidae) with a re-description of *Magelona wilsoni* Glémarec, 1966

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Fiege, Licher & Mackie carried out a partial review of the European Magelonidae in 2000, describing *M. johnstoni* and raising the number of confirmed species to 7. An eighth European species, *Octomagelona bizkaiensis*, was described in 2001 from the Bay of Biscay by Aguirrezabalaga, Ceberio & Fiege. This current study of the Portuguese Magelonidae aims to increase our knowledge further. Specimens of *Magelona* were collected from the southwestern Portuguese continental shelf during the Seplat 6 & 7 cruises, between April 1981 and October 1983. Two species of *Magelona* were found showing affinities with *Magelona cornuta* Wesenberg-Lund, 1949 from the Gulf of Oman, and *Magelona wilsoni* Glémarec, 1966 from Brittany. *Magelona* cf. *cornuta* was the more abundant of the two species, being identified from 16 stations at depths of between 105-327 metres, in sandy mud, muddy sand and sand. *Magelona* cf. *wilsoni* was found at 6 stations at 110-135 metres in similar sediments. A re-description of *M. cornuta* was undertaken by Mortimer & Mackie in 2009. However the Portuguese *M. cf. cornuta* specimens, though morphologically similar, differed in the nature of the thoracic lamellae and prostomial shape, and a new species is described here. A re-description of the *M. wilsoni* holotype was necessary in order to investigate the small differences found between the Glémarec's original description and the Portuguese material. Other species identified from the Seplat

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cruises include *M. alleni*, *M. filiformis*, *M. johnstoni*, and *M. minuta*. Previous records of *Magelona* from the Portuguese coasts are reviewed and commented on.

Revision of Australian species of the genus *Demonax* (Polychaeta: Sabellidae)

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The genus *Demonax* has only been recorded from Australia as a single species, *Demonax leucaspis* Kinberg 1867, misidentified as such by Monro in 1938 from Western Australia, and originally described from Chile. However *Demonax* commonly occurs in many habitats around the Australian coastline. On examination of many specimens from collections in Australian museums as well as newly collected ones, we have determined at least 3 species*, some new taxa and new records. We provide descriptions, with SEM photos and colour images of living animals. Characters used to differentiate species include arrangement of radioles in the crown, presence of eyes on the radioles, morphology of dorsal lips, shape of thoracic capillary chaetae, radiolar structure, and some other unusual features of the anterior end and branchial crown.

Sibling species flock of genus *Scoloplos* in the White Sea confirmed by mtDNA analysis

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Genetic polymorphism of polychaetes of species group of *Scoloplos armiger* (Muller, 1776) (Orbiniidae) in the White Sea and Hudson Bay is studied. Three different groups were found. Individuals of *Scoloplos* cf. *armiger* were collected at the White Sea Biological Station and in the Manitoba Bay (Hudson Bay, Canada). DNA extraction was performed from *Scoloplos* collected from intertidal zone to depths about 105 m. Variable fragments were amplified and sequence data was obtained using three regions of mtDNA. First region spanning ca. 600 bp region corresponding to the 3' end of *cox3*, *trnQ*, and the most of the *nad6*. Second pair is corresponding to the fragment of 16S DNA (AnnF-AnnR). The third pair were standard barcoding (Folmer) part of COI gene. Phylogenetic analysis of combined dataset revealed that White Sea *Scoloplos* represents by three groups clear differ from each other. Comparison with data from GenBank (sequences from Bleidorn et al., 2005?), shows that one of these groups belongs to from type locality (Kristiansand, Norway) clade. The second clade is a sister-group to "intertidal clade" from North Sea

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(Germany). The third group is separated from other North-Atlantic clades and this clade consists of two closely related groups, one is found in the White Sea, and the other species is restricted to Manitoba Bay (Hudson Bay, Canada).

Four terebellines (Polychaeta, Terebellidae) with problematic taxonomic history

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Pista corrientis McIntosh, 1885 is a well known species along the south-southeastern Brazilian coast, occurring from the intertidal zone to relatively shallow waters (down to 100 m deep) on rocky shores or sandy or muddy sediments. However, although the type locality is close to the southern Brazilian coast, off Rio de La Plata, Argentina in depths of >1000 m. Examination of the holotype and the Brazilian material revealed that they belong to different taxa, distinguished from each other mostly by the morphology of the lobes on anterior segments and of the uncini on the region with biramous parapodia, and the Brazilian species being new to science. In addition, in a recent study describing terebellids from northeastern Brazil, type and non-type material of several taxa occurring in the Caribbean was examined for comparison with the Brazilian specimens and two of them revealed taxonomic problems. *Terebella turgidula* Ehlers, 1887 was considered as belonging to the genus *Eupolymnia* Verrill, 1900 by several authors, however a recent study reallocated this taxon back to *Terebella* Linnaeus 1767. Our examination of the holotype of *T. turgidula* revealed that lateral lobes and distally winged notochaetae are present indicating it represents a species of *Eupolymnia*. *Pista sombreriana* McIntosh, 1885 was considered as an undeterminable taxon by some authors, but our study of the holotype showed that, although the specimen is in poor state of preservation, most of the taxonomic characters are visible. However, the morphology of the lobes on anterior segments and of notochaetae indicate that this taxon belongs to the genus *Lanicides* Hesse, 1917. All these taxa are herein described.

A new species of *Terebellides* Sars, 1835 from French Frigate Shoals, Northern Hawaiian Islands

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A new species of *Terebellides* Sars, 1835, was found among polychaete material collected

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in French Frigate Shoals, Papahānaumokuākea Marine National Monument, northwest Hawaiian Islands, by means of scuba diving in shallow waters. Reports of *Terebellides* from Hawaii are few. *Terebellides tentacula* Treadwell, 1906, was described from the Kaieie-Waho Channel between Oahu and Kauai Islands in 508-1359 m but was later transferred to the genus *Melinnexis* Annenkova, 1931 (Ampharetidae) by Hartman (1956). While the genus is not mentioned in Bailey-Brock's (1987) synoptic account of Hawaiian polychaetes, *T. stroemi* Sars, 1835 was reported from Waikiki, Hawaii in grey literature (Coles et al. 2002). Our examination of the Waikiki specimen revealed that it is not *T. stroemi* and belongs to a species different from our material. *Terebellides* sp. n. is characterized by the morphology of the scoop-like process of the lower lip which has a large convoluted marginal lobe projecting forwards and covering the mouth, the branchial morphology, and the shape of the neuropodial spines of segment 8 and the uncini throughout the body. In addition, *Terebellides* sp. n. has inconspicuous deflection at segment 3, notopodia beginning from segment 3, and a remarkably short abdomen with compacted segments deflected dorsally. This species is similar to *T. parvus* Solis-Weiss, Fauchald and Blankensteyn, 1991 in having a short abdomen deflected dorsally, but they differ in the morphology of the branchiae and the number of uncini per torus throughout the body.

Biodiversity of intertidal polychaetes along the state of Paraíba, northeastern Brazil – First results

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The coastline off the state of Paraíba, northeastern Brazil, is bathed by warm, tropical waters and has shallow reefs close to shore, in most cases mainly built by calcareous algae and secondarily colonized by corals and other sedentary organisms. The marine fauna is very rich but poorly known, because few inventorial studies have been conducted in the area. The invertebrate fauna in the area started being investigated in 2007, by a large project focused on the macrofauna; a second project focused specifically on the polychaete fauna occurring intertidally along the entire coastline of Paraíba started in 2008, both projects funded by Conselho Nacional de Desenvolvimento Científico e Tecnológico – CNPq. For this second project, collections are made by scrapping from the reefs tufts of algae, sponges, ascidians, nodules of calcareous algae, pieces of sabellariid reefs, and similar microhabitats. Collected material was examined using a stereo microscope, polychaetes were sorted, relaxed in menthol solution, fixed in seawater-formalin and subsequently washed and preserved in 70% ethanol. Five beaches have already been sampled: Pier de Cabedelo, Praia de Cabo Branco, Praia de Carapibus, Praia de Tabatinga and Praia de Tambaba; two more collections are planned for the area, investigating ten more beaches and covering the entire extension of the coastline of the state. Eleven families were found in

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those samples, of which Syllidae, Eunicidae, Nereididae, Hesionidae and Lumbrineridae, in this order, were both the most abundant and the most diverse. In the case of syllids, three genera and four species of Autolytinae, four genera and five species of Eusyllinae, three genera and three species of Exogoninae, and five genera and eight species of Syllinae were found.

Phyllodocidae Örsted, 1843 (Polychaeta: Annelida) from southern and southeastern Brazil

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The Phyllodocidae currently includes 18 genera and 500 described species, of which 350 are considered valid. As yet only 7 genera and 16 species have been recorded from Brazilian waters. Some of these records are doubtful or only available in unpublished theses. Based on newly collected material or museum collections, we present herein a first taxonomic survey of phyllodocids from shallow coastal environments and from the continental shelf off southeastern and southern Brazil. Eleven species, belonging to seven genera, were found: *Eulalia myriacyclum*, *Hypereteone alba*, *Phyllodoce lineata*, *P. mucosa*, two new species of *Phyllodoce*, *Anaitides madeirensis*, *A. panamensis*, a new species of *Paranaitis*, *Nereiphylla castanea* (previously referred to *Genetyllis* or *Phyllodoce*), and *Eumida sanguinea*. *Anaitides tamoya* Nonato, 1981 *nomen nudum* (recorded in an unpublished thesis) is referred to *A. panamensis*. The biogeography of the regional phyllodocid fauna is analysed, on the basis of the studied material and literature reports. The geographic distribution of many species and one genus, *Paranaitis*, is extended. The diversity of phyllodocids along the Southwestern Atlantic is still considered low when compared to other subtropical and tropical areas, such as the Caribbean waters.

Lumbrineridae from the Norwegian Sea with a new deep-water species of *Abyssoninoe* (Annelida: Polychaeta)

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The Norwegian Sea constitutes the northern Arctic-boreal region of the North Atlantic. About 15 species of Lumbrineridae are known from the area, belonging in the genera *Abyssoninoe*, *Augeneria*, *Lumbrineris*, *Lumbrineriopsis* and *Scoletoma*. In addition, species of *Cenogenus*, *Eranno* and *Lumbrinerides*, which are known from central North Atlantic deep-water, are found in the southern parts near Iceland and the Faroes. Most species occur in shelf and coastal areas in shallow to moderate depths. From 600-800

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m species diversity rapidly decreases, at 1000 m less than 10 species of Lumbrineridae are known, at 2000 m less than five species, and below 3000 m only one species. Water masses below 800 m are of Arctic origin with temperatures below zero C. The present study is based on material from museum collections, faunal surveys and environmental monitoring. In particular, material from deeper areas (800-3500 m) was obtained during the 1980s in extensive surveys using epibenthic sledges. Museum specimens originally reported as *Lumbrineris impatiens*, *L. minuta* and *L. fragilis* have been re-examined and found to belong to various genera and species. Species discrimination is problematical in several genera, in particular *Abyssoninoe*, *Augeneria* and *Lumbrineris*. This is partly due to insufficient species characterisation, especially among early described taxa, and partly due to poor knowledge about character variation. The present paper gives an account of the species in the area with regard to taxonomic status, problems with characters used for species discrimination, and known depth and geographical distribution. One species of *Abyssoninoe*, which is the only species present below 3000 m, is described as new to science.

On the taxonomy and distribution of the deep-sea species *Axiokebuita minuta* (Hartman, 1967) (Polychaeta; Scalibregmatidae)

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Hartman (1967) described the scalibregmatid polychaete *Kebuita minuta* from the South Orkney Islands and Antarctic Peninsula. Two decades later, Pocklington and Fournier (1987) create a new species in a new genus, *Axiokebuita millsii*, from slope depths off Eastern Canada and propose the inclusion of *K. minuta* in this new genus. As these authors assigned three further specimens previously identified as *K. minuta* by Hartman (1978) and Blake (1981) to the new species, it is therefore considered a taxon with a bipolar distribution. According to those authors, the two species are distinguished by the presence in *A. millsii* of a “globular postsetal notopodial lamella”, which is supposedly absent in *A. minuta*. In this communication, taxonomy, distribution and ecology of the species is summarized and a redescription and comparison of *A. minuta* is presented from newly collected material in the Bellingshausen Sea and west coast of the Antarctic Peninsula, by the Spanish project BENTART (2006 cruise). Two previously unnoticed structures both from Antarctic and Norwegian specimens, i.e. a ciliated neck organ and a prostomial depression were observed under SEM and are here reported. *Axiokebuita millsii* Pocklington and Fournier, 1987 and *A. minuta* (Hartman, 1967) should be considered as the same species and the former is proposed as junior synonym of the latter.

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Three new species of *Polygordius* (Polychaeta: Polygordiidae) from North America

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The Polygordiidae are a small group of interstitial polychaetes distributed worldwide. Currently 18 species and 2 subspecies are known with most described from European waters and only a single species described from North America (*Polygordius jouinae* Ramey, Fiege and Leander 2006). Here we describe three additional North American *Polygordius* from the Atlantic and Pacific Oceans based on light and scanning electron microscopy. Detailed pygidial gland morphology, unexplored for most species until today, proved especially useful in distinguishing these new species from each other and from all other species known to date. *Polygordius* spec. nov. 1 is from the north-eastern United States, off Virginia, and has four anal cirri, >40 elongate pygidial glands, a rounded prostomium, and an antennae:prostomium ratio of ~2:1. *Polygordius* spec. nov. 2 is from the north-western USA, in Puget Sound. It lacks anal cirri, has 20-24 oval pygidial glands, a conical prostomium, and an antennae:prostomium ratio of 1:1. *Polygordius* spec. nov. 3 is from the central Pacific, off Hawaii. It also lacks anal cirri, has ~10 oval pygidial glands, a rounded prostomium and an antennae:prostomium ratio of 1:1. *Polygordius* spec. nov. 3 also differs from all other species in that the long axis of the pygidial glands are oriented perpendicular rather than parallel to the body axis as is common in all other species known to date.

A new species of *Nicomache* (*Loxochona*) Arwidsson, 1907 from the arctic Loke's Castle vent field

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Benthic invertebrates, associated with the Loke's Castle vent field at 2400 m depth at the ultra-slow spreading Arctic mid-ocean ridge north of Jan Mayen, was collected by the R/V "G. O. Sars" in August 2008 and July 2009. ROV samples from the ferrous crust covering the black smokers and from areas along the base of the chimneys, where the venting is more diffuse, showed that the fauna was dominated by tube-building polychaetes. A relatively large maldanid species belonging to the genus *Nicomache* Malmgren, 1865 was found to be particularly common, and is here described as a new species. The new species is further referred to the subgenus *Nicomache* (*Loxochona*) Arwidsson, 1907 based on the presence of an asymmetric pygidium and the absence of nephridial papillae on setiger 6. The subgenus *Loxochona* includes, at present, 7 nominal species, and the new species

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described herein is the 4th species associated with reducing habitats. A table with diagnostic characters for all species referred to the subgenus *Loxochona* is provided. The new species builds tubes up to a length of about 20 cm or more. The tubes are tightly fastened to the substratum and several specimens are often tightly felted into a thick crust. Together with other tube building species, this new species of *Nicomache* forms a complex three-dimensional habitat for a number of free living invertebrates.

On the structure of the tentacular apparatus of vestimentiferan tubeworm *Riftia pachyptila*, 1981 (Annelida, Vestimentifera)

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Riftia pachyptila is the most famous gutless tubeworm that inhabits hydrothermal vents in Pacific Ocean consuming nutrients *via* bacterial endosymbionts. Since the tubeworm's internal organization was described by Meredith Jones in 1985, fine details of anatomy of *R. pachyptila*, the largest vestimentiferan, remain poorly known, in part because of the size of this organism (adults reach 1, 5 m in length). Tentacular organization made Jones (1985) to divide vestimentiferan tubeworms into two groups placing *R. pachyptila* in individual Axonobranchia group and gathering other vestimentiferans in Basibranchia group. Data of molecular phylogeny did not support this isolation of *R. pachyptila*. Combination of morphological and molecular biological characters allowed to split up vestimentiferans into two groups: Lamelibachiida and Tevniida including *R. pachyptila* (Malakhov, Galkin, 1998). But there were not explanation of tentacular arrangement of *R. pachyptila*. Our study of morphology of the tubeworm especially reconstruction of tentacular apparatus reveals row of similarities of *R. pachyptila* and other vestimentiferan tubeworms.

First record in the Western Mediterranean Sea of *Branchiomma boholense* (Grube, 1878) (Polychaeta: Sabellidae), an alien species of Indo-Pacific origin

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During the last years, the concern about the effect of alien species on native marine communities has grown. The case is especially serious in the Mediterranean Sea, where over 500 alien marine species have been recorded, many of them native to the Red Sea. These species supposedly arrived to the Mediterranean through Suez Canal and are

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generically named Lessepsian migrants. During a survey on the polychaete fauna of the Mar Menor littoral lagoon, in the south-eastern Spain, the presence of a dense population of *Branchiomma boholense* (Grube, 1878) has been detected. It represents the most western record of this sabellid polychaete in the Mediterranean Sea and its first record for the Iberian Peninsula; however, it is locally common in the Eastern Mediterranean, where it spread from its Indo-Pacific origin. In its Spanish location, *B. boholense* was mostly found forming dense aggregates of specimens associated with *Caulerpa prolifera* meadows. Based on the newly collected material, a characterization of the species is provided; it can be distinguished from other species within the genus by the shape of its macrostylodes, which differ from adjacent stylodes in being up to four times longer, tongue-shaped and flattened instead of digitiform and cylindrical.

Deep Sea Pilargidae from southern Brazil

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In this study we identified specimens from the family Pilargidae collected during “Habitats Project – Campos Basin Environmental Heterogeneity coordinated by CENPES/PETROBRAS” and by other cruises in Campos Basin at depths ranging from 400 to 3.000 m. The Campos Basin is considered the largest oil reserve in the Brazilian continental shelf, covering an area about 100000 km² extending from the State of Espírito Santo to the northern coast of Rio de Janeiro State. Identifications, descriptions and illustrations were made with stereomicroscope and optic microscope, besides the use of digital camera. At the moment, we identified a total of 59 pilargids belonging to eight species were found, 37 from *Synelmis* cf. *klatti*, 2 *Sigambra* aff. *setosa*, 1 *Sigambra tentaculata* 1, *Ancistrosyllis breviceps*, 2 *Ancistrosyllis* sp.1, 4 *Ancistrosyllis* sp.2, 9 *Ancistrosyllis* sp.3 and 3 *Ancistrosyllis* sp. 4. Four out of these eight species, *Ancistrosyllis* sp.1, *Ancistrosyllis* sp.2, *Ancistrosyllis* sp.3 and *Ancistrosyllis* sp.4, showed a strong affinity to the Gulf of Mexico however are still under investigation. The geographic distribution of many species will be extended.

Brief review of Japanese Spirorbinae

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First data on Japanese Spirorbinae were published by Bush (Moore, Bush, 1904; Bush, 1905) who described 4 new species: *Spirorbis argutus*, *S. foraminosa*, *S. bellulus* and *S. dorsatus*.

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Okuda (1934; 1937) described *S. nipponicus* and recorded a new for Japan *S. spirillum*. Abe (1943) recorded *S. pagenstecheri*, described biology of *S. argutus* and mentioned two unidentified spirorbins tentatively naming one *S. asamusiensis* without any reference.. The first review of Japanese Spirorbinae (Imajima, Hartman, 1964) included 6 species recorded by Bush and Okuda (but not Abe) and a new for Japan *Leodora coronatus*; “*nipponicus*” was synonymized with *Dexiospira alveolatus*. Uchida (1971; 1978) recorded 12 species, including six new ones (*Paradexiospira nakamurai*, *Dexiospira oshorensis*, *D. ainu*, *Laeospira pacifica*, *L. rosepigmentata*, *Leodora multiplata*) and three new for Japan (*Spirorbella tricornigera*, *Pileolaria militaris*, *Simplicaria pseudomilitaris*). Later all new Uchida’s species and *S. tricornigera* were synonymized with other species (Knight-Jones P. et al., 1975; 1979; Knight-Jones & Knight-Jones 1977; Thorp et al., 1986) all of them remained new for Japanese fauna. Also Knight-Jones recorded two new species for Japan (*Circeis armoricana* and *Sinistrella verruca*). Rzhavsky (1989) concluded that “*spirillum*” from Japan in fact was *C. armoricana*. The final list of Japanese spirorbins now includes 19 species, including our new data: *Spirorbis marioni*, *C.armoricana*, *Paradexiospira vitrea*, *Protolaeospira sp.(striata?)* (new for Japan), *Pileolaria ex.gr. berkeleyana*, *Pileolaria n.sp.*, *P.cornuarietis* (= *P. militaris*), *Bushiella verruca*, *B. quadrangularis*, *B. similis* (new for Japan), *Protolaeodora coronata*, *P. gracilis* (new for Japan), *Janua pagenstecheri*, *Neodexiospira alveolata*, *N. brasiliensis*, *N. foraminosa*, *N. preacuta* (new for Japan and North Pacific) and *N.pseudocorrugata*. In addition, *S. dorsatus* and *S. asamusiensis* are *nomen dubium* and *nomen nudum*; *S.argutus sensu* Bush, (not Abe) is probably the same as *Eulaeospira orientalis*. We suggest that *Bushiella evoluta*, *Protolaeodora uschakovi* and true *Circeis spirillum* should be present at least in the North of Japan.

Syllinae (Annelida: Polychaeta) from the Southern Mexican Pacific, with the description of four new species

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A study dealing with soft bottom macrobenthic fauna took place in the west coast of Acapulco Bay, Southern Mexican Pacific. 669 specimens of the Subfamily Syllinae Grube, 1850 (Syllidae) were collected; they belong to three genera and ten species. The samples were taken by SCUBA-divers and by means of a suction sampler (60 cm diameter) operated by compressed air from a SCUBA tank. Four species are new to science, belonging to the genera *Plakosyllis* Hartmann-Schröder, 1956, *Trypanosyllis* Claparède, 1864 and *Syllis* Savigny, 1818. The new species of *Plakosyllis* is characterized by having compound falcigers with very long and fine spines and the three antennae in ventral position, partially or completely covered by the prostomium; the genus is newly recorded for the American Pacific. The new species of *Trypanosyllis* is characterized by having bidentate falcigers with an inconspicuous notch and by having a pair of dorsal eyes and a pair of ventral eyes.

Poster ABSTRACT

One of the new species of *Syllis* is closely related to *S. vivipara* Krohn, 1869, nonetheless, all its falcigers are bidentate, with the subdistal tooth smaller, sometimes inconspicuous, and some of them have coarse and long spines on margin. The other new species of *Syllis* is characterized by having bidentate falcigers with rounded teeth and coarse long spines and by having the body densely covered by papillae. *S. magnipectinis* (Storch, 1967) from the Red Sea, Gifatin Island, Gulf of Mexico and from the South China Sea is newly reported in the American Pacific. Additional taxonomic notes about the morphologic variation found in *S. magnipectinis*, associated with the size of the organisms and its distribution are included herein. *S. glarearia* (Westheide, 1974) from the Galápagos Islands and Panama Pacific and *S. garciai* (Campoy, 1982) from Atlantic and Mediterranean coasts and Panama Pacific are newly recorded for the Mexican Pacific.

The genus *Syllis* Savigny in Lamarck, 1818 (Syllidae: Syllinae) from Australia

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Syllis is the most diverse and numerous genus of the family Syllidae, with more than 135 valid species, and continuously new species are being described. The number of Australian known species is relatively low, only about 34 valid species have been reported from such a big area. Most of these reports were made by Hartmann-Schröder, in a large series of papers (1979-1981), and also some reports of Haswell (1886, 1920) and others.

A series on the Australian Syllidae was started by the senior author (GSM) in 2005, and also in collaboration with the other two authors (2006, 2007, 2008, in press). Up to know, the subfamilies Exogoninae and Eusyllinae, as well as the most part of the Syllinae genera, have been published in several papers. This paper deals with the genus *Syllis*.

Study of large collections of Syllidae from all around Australia, as well as other collections, reveals that the real number of species of *Syllis* is much larger, and includes several new, undescribed species, new reports, as well as some species previously considered as synonymies of other, but considered as valid species after detailed study.

Nereididae (Polychaeta) from the Persian Gulf and Gulf of Oman

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Poster ABSTRACT

The present study deals with species composition and distribution of the family Nereididae collected from the Northern coasts of the Persian Gulf and Gulf of Oman. This study was carried out from September 2006 to November 2007 at 57 stations, comprising muddy, rocky, sandy, sandy-rocky shore types. Specimens were collected by hand. During the sampling, nine genera and 16 species of Nereididae were identified. Specimens from Gulf of Oman, apparently all new records, were *Leonnates decipiens*, *Nereis coutierei*, *Neanthes deplanata*, *Perinereis nuntia*, *Perinereis heterodonta*, *Perinereis cultrifera*, *Perinereis horsti*, *Pseudonereis trimaculata* and those from Persian Gulf were *Compositetia burmensis* (new record), *Dendronereides heteropoda*, *Leonnates indicus*, *Leonnates persicus*, *Neanthes cf. bassi* (new record), *Nereis neogracilis*, *Perinereis nuntia*, *Perinereis heterodonta*, *Perinereis cultrifera*, *Perinereis horsti*, *Perinereis nigropunctata*, *Platynereis pulchella*, *Pseudonereis trimaculata* (new record), *Simplesetia erythraeensis*. So far, the Persian Gulf showed higher diversity in Nereididae than that in the Gulf of Oman. To be conclusive about the results more sampling from the Gulf of Oman is needed. Specimens recovered during the survey are deposited at Zoological Museum of the University of Tehran (ZUTC).

Polychaetes of the genus *Protodrilus* (Polychaeta, Protodrilidae) from the Black Sea

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Protodrilus flavocapitatus Uljanin, 1877 and two unknown for the Northern Black Sea *Protodrilus* species are found in tidal coarse sand and gravel from Novyj Svet (the Crimea). Taxonomical position of two presumably synonymous species: *P. flavocapitatus* and *P. rubropharyngaeus* Jägersten, 1940 is discussed. The differences between these two species are mentioned in the shape and position of nuchal organs, ciliation of head and trunk and some characters of reproductive system. *Protodrilus* sp. from upper subtidal sand of Blue Bay (Gelendzhik) is possibly new to science. The worms could be well distinguished from the other species of the genus by possessing a pair of pigmented eyes on the dorsal side of the prostomium. Average length is 1.2 mm, width – 71.5 mkm. There are 11-25 trunk segments. Body segments are rather transparent. Epidermis contains numerous small nearly round glands and small bacillary glands. Pigdial lobes are elongated, narrow in the tip. Salivary glands extend at least into segments 4-5. Male fertile region begins in segment 9 or 10. Female fertile region begins in segment 6-9(10). There are 3-6 large eggs per segment, 3 posterior most segments usually without eggs. 6 pairs of oviducts were found in segments 12-17. Cocoon glands and dorsal organs are absent.

Specifying remarks on several *Laonice* species with description of new species from South Africa

Poster ABSTRACT

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A new species *Laonice antipoda* is described from South Africa. Also valuable remarks (based on examinations of type-materials) concerning several species discussed. Several species-names are treated as junior synonyms. A review of all described species of *Laonice*, together with characters most commonly used in taxonomic work on the genus is given in a special table. Most of the observations and discussions presented in the table are based on the author's own examinations

The fine structure of epidermal pappillae of *Travisia forbesii* (Johnston, 1840) (Polychaeta, Opheliidae).

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Specimens of *Travisia forbesii* from the White Sea were collected and investigated with light and electron microscopy technics (SEM and TEM). The surface of almost whole body of these worms (except gills, prostomium and pigidium) is not smooth, but composed of semi spheric structures about 50 mkm in diameter. We suggest to call them epidermal papillae. The cuticle covers the outer surface of papillae, divides them from each others and from the inner layer of epidermal cells, which lie on the basement membrane. The inner cuticle layer, cutis, has thickness about 20 mkm. There are connections between basal part of each papilla and underlying epidermis through the «inner» cuticle — we propose to call them «stems» of papillae (one papilla has one stem) . Every cell of the papilla is joined with neighbours with zonulae adhaerentes cell junctions. There is a lot of gland cells with prominent synthetic apparatus, Golgi complex and groups of secretory droplets in the papilla. There is a lot of electron-transparent spaces too — we propose them to be dead glands, which discharged their secrets. The stem of the papilla consists of one tube-like cell around the high fold of the basement membrane. There are several bands of thin cell projections, which penetrate the interior half of tube-like cell — probably, they are nerves. We suppose, that all of live gland and support cells have connections with mentioned above process of the basement membrane in the bottom of the papilla. The pigidium doesn't bring spheric epidermal structures — it covered by longitudinal folds. The way of growth of papillae is not clear yet, but we suggest them to develop from similar pleats of juvenile epidermis.

Polydorella – how little we know?

Poster ABSTRACT

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Polydorella spp. (Spionidae) are poorly known polychaetes of the *Polydora*-complex group. Originally described from South Australian waters, there are 5 described species worldwide. It is currently agreed that all are sponge associates and commonly show asexual reproduction. Recent investigations of museum sponge collections (Australian Museum, Museum and Art Gallery of the Northern Territory) have indicated that just under 25% of sponge specimens retained colonies of *Polydorella* with animals still attached to the sponge. New material collected from the Kimberley Islands off the north coast of Western Australia has indicated that *Polydorella* may be overlooked rather than uncommon; that many new species remain to be described; and the discovery of a colony on soft coral suggests that they are not exclusively sponge associates.

Evaluating COI DNA barcoding for Annelida using existing sequences

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In most animals, DNA barcoding uses a short region of the mitochondrial gene COI in species level differentiation and identification. A divergence between sequences below 2% is generally considered intraspecific variation while a higher variation is usually taken as interspecific. However, previous studies for different taxa have shown that 2% is not a universal threshold. Here, we used Kimura 2-parameter distance and reciprocal monophyly of Annelida COI sequences available in GenBank to evaluate intra versus interspecific divergences threshold in this group. A total of 183 intraspecific distances were compared to the lowest 183 values of interspecific distances obtained from 503 pairwise interspecific comparisons in order to search for “barcoding gap” and divergence values which yielded the lowest type I (splitting, considered different species when they are really not) and II (lumping, considered the same species when they are not) errors. No “barcoding gap” could be recognized. A 5% divergence would be the threshold for intraspecific variation if this were to be set at the lowest type I + II error. However, both errors are still high at such divergence (27% type I and 11% type II). A type I error of 0.05 is only obtained at 20% of intraspecific divergence. Furthermore, 20% of the observed intraspecific distances are above 10% divergence. Such values are much higher than those observed in previous analyses, which used original sequences. Therefore, our results are extra evidence to the high levels of species and sequences misidentification, as well as of unrecognized cryptic species among GenBank sequences.

10th INTERNATIONAL POLYCHAETE CONFERENCE
LECCE, ITALY from JUNE 20th to 26th, 2010 - e-mail: polychaeteconference2010@gmail.com
University of Salento, DISTeBA, Lecce - Stazione Zoologica “Anton Dohrn” of Naples

Poster ABSTRACT

Reciprocal monophyly analyses are our next step. These analyses will aid in the detection of misidentified taxa, therefore in the determination of more meaningful threshold values.

Diversity and fauna characters of Spionidae (Polychaeta: Spionidae) species from Chinese waters, with the description of four new species

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In China, studies concerning spionids were very rare, although they represented one of the most common polychaete groups and there were quite a lot of samples collected each year. Only a few genera such as *Polydora* and *Pseudopolydora* (Radashevsky & Hsieh, 2000a; Radashevsky & Hsieh, 2000b) had been systematically studied. In this study, we systematically checked materials deposited in the Marine biological Museum, Chinese Academy of Sciences, which is the largest place for storage of polychaetes samples. Materials of which had been the results of extensive collecting during the past several decades and covered most of Chinese coastal lines (ranging from 21°32' N to 39°21' N). In total, 39 species in 19 genera had been identified. The present paper reported part of the results (four new species). These new species belong to *Paraprionospio*, *Prionospio*, *Scoelepis* and *Spiophane*, respectively, i.e. *Paraprionospio cristata* sp. nov., *Prionospio pacifica* sp. nov., *Scoelepis daphoinos* sp. nov., *Spiophanes fuscatus* sp. nov. *Paraprionospio cristata* sp. nov., is characterized by having brown pigment patches on the prostomium, ventral crests on chaetigers 9 and 10, dorsal crests on middle part of the body (from chaetigers 21-23, not beyond chaetiger 29), thin filaments on chaetiger 3, and bifoliate branchial lamellae. *Prionospio pacifica* sp. nov. is unique in having first and fourth pairs of branchiae pinnate, second and third pairs of apinnate, ventral crest on setiger 9 and dorsal crests on setigers 10—25. *Scoelepis daphoinos* sp. nov. differs from the related species in several morphological details, including the presence of obvious reddish pigmentation patches and the absence of unidentate hooded hooks. *Spiophanes fuscatus* sp. nov. can be distinguished from other species by lacking median antenna and having remarkable dark brown pigmentations around the glandular organs on setiger 9. Fauna characters of Chinese spionid are quite different from others in that it consists of many endemic species (12 species, 31 percent of total amount). Cosmopolitan species (8 species, 21 percent of total amount) and those only found in China and Japan (5 species, 13 percent of total amount) also occupy a relatively high proportion. In the northwest Pacific, fauna characters of Chinese spionid most resemble those of Japan.