MAPWORMS

Mimicking Adaptation
and Plasticity in
WORMS

D2.1 GEOREFERENCED ANNELIDA DISTRIBUTION MAP ALONG THE SALENTO COAST

Deliverable Number	2.1
Work package Number and Title	WP2 – Ecological, morphological and taxonomic studies for selected species of marine Annelida
Lead Beneficiary	CoNISMa
Version – Status	Draft
Due Date	30 April 2023
Deliverable Type	R
Dissemination Level	PU
Internal Reviewer	Kleoniki Keklikoglou Jacopo Quaglierini
Filename	MAPWORMS_D2.1_georeferenced-map_VF

Funded by
the European Union

European
Innovation
Council

This project has received funding from the European Union's
Horizon Europe research and innovation programme under
grant agreement N° 101046846

DOCUMENT INFO

AUTHORS

Surname	First name	Organization	E-mail
Langeneck	Joachim	CoNISMa	langeneck@conisma.it
Bilan	Meri	CoNISMa	bilan@conisma.it
Putignano	Matteo	CoNISMa	matteo.putignano@unisalento.it
Toso	Andrea	CoNISMa	andrea.toso@unisalento.it
Musco	Luigi	CoNISMa	luigi.musco@unisalento.it

INTERNAL REVIEWERS

Surname	First name	Organization	E-mail
Keklikoglou	Kleoniki	HCMR	keklikoglou@hcmr.gr
Quaglierini	Jacopo	SSSA	jacopo.quaglierini@santannapisa.it

DOCUMENT HISTORY

Date	Version	Editor	Change	Status
14/03/2023		Joachim Langeneck	Structure of the document	Draft
14/03/2023	v1	Meri Bilan	Inclusion of the checklist	Draft
20/03/2023	v2	Joachim Langeneck	Draft of Material and methods, Results, Conclusions	Draft
21/03/2023	v3	Meri Bilan	Revision of v2	Draft
22/03/2023	v4	Joachim Langeneck	Addition of references, revision of v3	Draft
23/03/2023	v5	Luigi Musco	Revision of v4	Draft
25/03/2023	v6	Joachim Langeneck	Draft of Introduction, additional paragraph in Materials and methods	Draft
26/03/2023	v7	Matteo Putignano	Revision of v6	Draft
30/03/2023	v8	Andrea Toso	Revision of v7	Draft

31/03/2023	v9	Joachim Langeneck, Meri Bilan	Revision of v8.	Draft
04/04/2023	v10	Meri Bilan, Joachim Langeneck	Check of typos	Draft
10/04/2023	v11	Kleoniki Keklikoglou	Revision of v10	Draft
11/04/2023	v12	Jacopo Quaglierini	Revision of v10	Draft
18/04/2023	v13	Joachim Langeneck, Meri Bilan	Implementation of comments from internal reviewers	Draft
19/04/2023	v14	Meri Bilan, Joachim Langeneck	Addition of Darwin Core standard to Materials and Methods	Draft
26/04/2023	v15	Joachim Langeneck	Final check	Draft
28/04/2023	VF	Arianna Menciassi	Final revision and approval of the document	Final
28/04/2023	VF	Arianna Menciassi	Document submission	Final

TABLE OF CONTENTS

1 INTRODUCTION

The project MAPWORMS (Mimicking Adaptations and Plasticity in WORMS) is a multidisciplinary project with the final goal of developing bio-inspired, soft-bodied robots which are capable to autonomously adapt to the surrounding environment. The model chosen by this project is represented by marine annelids, in virtue of the extremely wide functional and ecological diversity displayed. While the first studies in this direction focused on earthworms (Kim et al., 2013; Calderón et al., 2016; Yang & Zhang, 2019) and later sipunculans as promising models (Filogna et al., 2021; 2022), one of the aims of the study is to extend the study to other annelids and to verify the potential application of other adaptations to next-generation robots.

An important part of the MAPWORMS project is represented by this deliverable in which we reconstructed a detailed mapping of the distribution of marine annelids along the coastline of Salento using literature sources as well as the examination of new samples. The Salento Peninsula has been chosen for this project as the source of the biological material employed because of its geographical position and environmental variability, which allows to find a wide array of potential model species within a relatively restricted area. However, the reconstruction of the distribution of marine annelid taxa in the study area is a crucial step before selecting model species, in order to identify potential source populations with georeferenced data.

2 MATERIAL AND METHODS

2.1 STUDY AREA

The Salento Peninsula (Fig. 1) represents the eastern-most edge of the Italian Peninsula, stretching in direction North-West – South-East between approximately 40.5 and 39.5 °N, and 17.25 and 18.45° E, for approximately 100 km, with a linear extension of the coast around 260 km, and with an average width of 30-40 km. The western coast of Salento, facing the Gulf of Taranto (Northern Ionian Sea), goes from Taranto to Cape Santa Maria di Leuca. The eastern coast of Salento goes from Brindisi to Cape Santa Maria di Leuca and is characterised by a more complex hydrography, as its northern part faces the Southern Adriatic Sea, its middle part faces the Strait of Otranto (considered as a transition area between the Ionian and the Adriatic Sea), while its southern part faces the North-Eastern Ionian Sea. The continental shelf is distinctly wider along the north-eastern part of the Salento Peninsula, which is mostly characterised by soft bottoms, while depth increase is steeper along the southern and western parts of the peninsula, with a prevalence of hard bottoms (Accogli et al., 1993; Belmonte, 1993).

Figure 1. MAP OF THE SALENTO PENINSULA WITH THE MAIN URBAN CENTERS.

Coastal environments along the Salento Peninsula are charcterised by a great environmental diversity. The whole coastline includes several semi-enclosed coastal bodies, with salinity varying from almost freshwater to close to seawater; the widest and most important of them is the Mar Piccolo of Taranto, an eutrophic basin around which developed the historical town of Taras (now Taranto). Other smaller coastal lakes, such as Acquatina Lake and the Alimini Lakes, are relevant for artisanal fisheries and fish farming. In addition, the Salento Peninsula is characterised by extensive karst systems that feed a number of submarine freshwater springs, called "citri", occurring especially along the western coast, and submarine caves, which contribute to the heterogeneity of the coastal habitats (Accogli et al., 1993).

Brackish-water environments and semi-enclosed gulfs (such as the Porto Cesareo Lagoon) are often characterised by the presence of meadows of *Cymodocea nodosa* (Ucria) Asch., while marine soft bottoms are widely covered by the endemic marine seagrass *Posidonia oceanica* (L.) Delile (Bianchi et al., 1989), and the non-indigenous seagrass *Halophila stipulacea* (Fossk.) Asch. is currently spreading, in particular along the western coast of the peninsula (Toso & Musco, 2023). Seagrasses typically allow the settlement of both vagile and sessile organisms and increase the diversity of benthic assemblages. Rocky substrates at depths between 25 and 50 m depth typically host rich coralligenous assemblages, characterised by the presence of coralline algae, bryozoans, gorgonians and hermatypic cnidarians, which on turn host a wide array of marine invertebrates. The continental slope is rather steep and, particularly in the area between Otranto and Cape Santa Maria di Leuca, characterised by the presence of hard substrates colonised by mesophotic and bathyal bioconstructions, such as bivalve and white coral banks, representing important habitat formers in the deep Mediterranean Sea (Belmonte, 1993; Mastrototaro et al., 2010; Gravina et al., 2021). The majority of mesophotic and bathyal environments along both the western and the eastern coast of the peninsula is characterised by muddy sediments, with much lower diversity and abundance of benthic assemblages (Amoureux, 1970).

The geographic position of the Salento Peninsula makes this area particularly interesting from the biogeographical point of view. Due to its position as one of the extreme edges of the Italian Peninsula, this area represented an important refuge area during the glacial periods for terrestrial organisms. As regards the marine fauna, the Salento Peninsula represents a bridge between the Ionian Sea and the Adriatic Sea, two areas characterised by different environmental conditions that drove the evolution of organisms into different directions, with the frequent arising of local adaptations and genetic differentiation (Villamor et al., 2014). More generally, the area between the Strait of Sicily and the Ionian Sea has been one of the most important refuge areas for marine life during the glaciations, and is still characterised by an incredibly high diversity, in term of both species and genes, if compared to other Mediterranean areas (Chefaoui et al., 2017; Langeneck et al., 2021). Considering both the geographical position and the environmental patchiness of the Salento Peninsula, several studies highlighted the importance of this area for the study of the diversity and evolution of marine organisms (Beli et al., 2018; Micaroni et al., 2018; Furfaro et al., 2020; Micaroni et al., 2022). It is likely that this is true for marine annelids as well; however, the knowledge about this group along the Salento coastline has not been systematised until now.

2.2 BIBLIOGRAPHIC RESEARCH

Information about the marine annelid fauna occurring along the Salento Peninsula coastline (Italy) was obtained by data mining the available literature, focusing on papers dealing with community ecology and annelid taxonomy.

In a first screening of literature, we prioritised papers including geographical coordinates associated to species records. In some cases, however, the reported coordinates were found to be erroneous, and several historical papers did not include even approximate geographical coordinates. It should be noted that in some cases the distributional data that could be mined from the literature were extremely inaccurate. For instance, in the studies by Bedulli et al. (1986) and Bianchi et al. (1989), the only available data were general species lists referring to several localities along the coast of Apulia, including the north-eastern part, which does not belong to the Salento Peninsula. Considering that data included in these papers often represented the only occurrence of some species or allowed to report them for the two sides of the Salento Peninsula, we decided to include these data to avoid an underestimation of the annelid diversity in the study area. We built two separate datasets, one with georeferenced records of annelid species and one including non-georeferenced literature reporting annelid species along the Salento peninsula. Both datasets are organized based on Darwin Core Standard (Wieczorek et al., 2012).

The datasets of annelid occurrences were organised in thirty columns as follows:

Column A: occurrenceID – globally unique identifier of occurrence

Column B: basisOfRecord

Column C: eventDate - Reporting of sampling dates varied between studies, sometimes reporting only the sampling year or sampling interval.

Column D: scientificName - Valid scientific name of the taxon according to World Register of Marine Species (WoRMS – Ahyong et al., 2023). In some cases, we decided not to follow WoRMS (either because the database was not updated according to recent literature, or because the available evidence points to incorrect synonymies or amendments).

Column E: kingdom

Column F: phylum

Column G: class

Column H: order

Column I: family

Column J: genus

Column K: specificEpithet

Column L: taxonRank

Column M: identifiedBy

Column N: habitat - Type of sediment where the taxon was sampled.

Column O: habitatRemarks

Column P: minimumDepthInMeters

Column Q: maximumDepthInMeters

Column R: recordedBy

Column S: decimalLatitude (only for the georeferenced dataset)

Column T: decimalLongitude (only for the georeferenced dataset)

Column U: geodeticDatum

Column V: country

Column W: countryCode

Column X: municipality - Sampling locality, defined in agreement with Righi et al. (2020) as a well-known toponym distant at least ten kilometres from the other areas listed.

Column Y: locality - Sampling station, as stated in the original reference.

Column Z: verbatimLocality

Column AA: individualCount

Column AB: organismQuantity

Column AC: organismQuantityType

Column AD: MaterialCitation - Full reference, Digital Object Identifier (if available) and, in some cases, notes about the data extracted.

The literature datasets were uploaded to OBIS without access restrictions (links: https://zenodo.org/record/7869994 and https://zenodo.org/record/7869960).

2.3 COLLECTION OF NEW DATA

During the first year of the MAPWORMS project (between the 01/05/2022 and the 28/02/2023), approximately 40 sampling events were organised in different habitat and at different depths, in order to obtain new distributional data about marine annelids along the Salento Peninsula. The sampling events were organised to cover areas and environments scarcely investigated in published literature, such as rocky areas characterised by karst freshwater inflow, coralligenous outcrops (at depths between 25 and 50 m), mesophotic bioconstructions (at depths between 50 and 90 m), and detritic sediments of the shelf area (at depths between 20 and 100 m). Sampling was carried out either with a Van Veen grab or by scuba diving; several samples consist of bioconstructions obtained as bycatch of trammel nets or trawling, from which the individuals were extracted with the aid of a 8% solution of $MgCl_2$. Whenever possible, the sampled specimens were photographed alive with a Stereomicroscope SMZ 25 equipped with DS-Ri2 video camera and a video-interactive image analysis system NIS–Elements BR 4.30.02 Nikon Instruments software. All specimens were fixed In 70% or 96% ethanol.

In addition, we included unpublished data collected between March 2015 and April 2022 along the Salento Peninsula. Lastly, one entry (corresponding to the only occurrence of a species in the study area) was obtained by a critical re-examination of old material incorrectly identified in Cinelli et al. (1988),

The dataset of new annelid occurrences followed Darwin Core Standards and was organised in twentynine as follows:

Column A: occurrenceID – globally unique identifier of occurrence

Column B: basisOfRecord

Column C: eventDate - Reporting of sampling dates varied between studies, sometimes reporting only the sampling year or sampling interval.

Column D: scientificName - Valid scientific name of the taxon according to World Register of Marine Species (WoRMS – Ahyong et al., 2023). In some cases, we decided not to follow WoRMS (either because the database was not updated according to recent literature, or because the available evidence points to incorrect synonymies or amendments).

Column E: kingdom

Column F: phylum

Column G: class

Column H: order

Column I: family

Column J: genus

Column K: specificEpithet

Column L: taxonRank

Column M: identifiedBy

Column N: habitat - Type of sediment where the taxon was sampled.

Column O: habitatRemarks

Column P: minimumDepthInMeters

Column Q: maximumDepthInMeters

Column R: recordedBy

Column S: decimalLatitude (only for the georeferenced dataset)

Column T: decimalLongitude (only for the georeferenced dataset)

Column U: geodeticDatum

Column V: country

Column W: countryCode

Column X: municipality - Sampling locality, defined in agreement with Righi et al. (2020) as a well-known toponym distant at least ten kilometres from the other areas listed.

Column Y: locality - Sampling station, as stated in the original reference.

Column Z: verbatimLocality

Column AA: individualCount

Column AB: organismQuantity

Column AC: organismQuantityType

The dataset was uploaded to OBIS (link: https://zenodo.org/record/7870065) but, as many of these data might be of interest for further publications (in particular, new distributional data for non-indigenous species and provisional new species) it has been subjected to an embargo time of two years and will be made publicly available after the publication of these data in a peer-reviewed paper. Material sampled during the project has been preserved for genetic analyses and will be deposited in the Museo di Biologia Marina of Porto Cesareo once processed.

2.4 BUILDING OF THE CHECKLIST AND DISTRIBUTIONAL MAP

The checklist of marine annelids occurring along the coast of Salento was built using all data available (literature with coordinates, literature without coordinates and new data). In the checklist, species were divided into families, following the nomenclature and systematics provided in WoRMS (Ahyong et al., 2023), unless differently specified. Additional information provided in the checklist includes a separation in western and eastern coasts, origin of data (literature or new records), depth range (when available), presence of photographic records, if the species is alien in the study area, and if the species is known to be a species complex. Further details on the exotic origin, occurrence of cryptic lineages, or additional considerations about the species, were added in the last column of the checklist.

The distributional map of marine annelids along the Salento Peninsula was built using ArcGIS 10.4. (ESRI, 2011) based only on the georeferenced literature (circles) and the new (stars) data. The bathymetry used was extracted from General Bathymetric Chart of the Oceans (GEBCO) on 6th of February 2023 (GEBCO Compilation Group, 2022).

2.5 SELECTION OF POTENTIAL MODEL SPECIES

Potential model species for the robot development were identified among the species occurring along the Salento coastline based on the following criteria:

1. Morphological features that might be interesting for the study of the mechanism of extrusion and eversion, such as the presence of introverts or the presence of an eversible pharynx.
2. Wide distribution along the coast of Salento, and the occurrence in shallow-water, easily accessible environments.
3. High ecological and environmental tolerance (e.g., tolerance to variations in the main physico-chemical parameters, such as salinity, temperature and oxygen concentration), that would facilitate the rearing of these organisms.

3 RESULTS

3.1 OVERVIEW ON THE DISTRIBUTIONAL DATA OBTAINED

Overall, we obtained 1815 georeferenced records from 58 literature sources spanning from 1988 to 2023, to which we added 539 further records without geographical coordinates from 45 literature sources, spanning from 1968 to 2020. Two sources were common between the two datasets, as part of the data available in Giangrande et al. (2015) has incorrect coordinates, while in Langeneck et al. (2020) one record is reported without coordinates. The total number of literature sources examined is therefore 101. Literature sources showed an increase in both number and frequency after the year 2000, and a second increase after 2014; indeed, 2022 was the year with the highest number of publications regarding the marine annelids of the Salento coastline, and all sources examined included georeferenced data. Non-georeferenced literature represented the bulk of the literature sources before the 1990s, and still accounted for more than half of the published data in the 1990s and 2000s, but the relevance of this type of source significantly decreases in the 2010s and, with the exception of the non-georeferenced record of *Lumbrineris perkinsi* Carrera-Parra, 2001 in Langeneck et al. (2020), completely disappears in the 2020s (Fig. 2). Georeferenced records referred to depths spanning from the surface to 1146 m, even though in several cases only depth ranges were available, and sampling dates spanned from 1975 to 2022. Non-georeferenced records referred to depths spanning from the surface to 2760 m, albeit this single record is most likely located in the middle of the Gulf of Taranto, and represents an evident outlier, while all other records are within the 1200 m bathymetric; sampling dates spanned from 1966 to 2013.

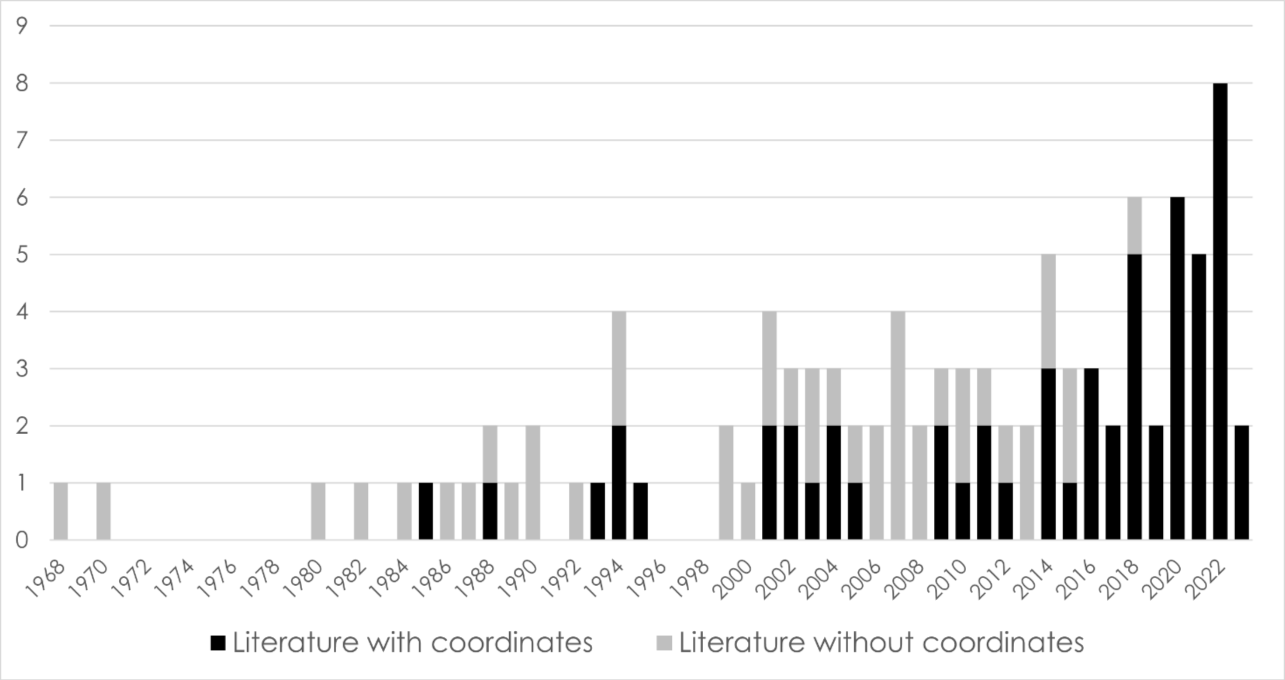

Figure 2. TEMPORAL DISTRIBUTION OF LITERATURE SOURCES WITH AND WITHOUT COORDINATES CONTAINING DATA FOR MARINE ANNELIDS ALONG THE SALENTO PENINSULA.

Sampling activities carried out during the first year of the MAPWORMS project obtained 792 georeferenced records, to which we added another 212 georeferenced records corresponding to unpublished material sampled before May 2022, and a single historical record due to the re-examination of the material included in Cinelli et al. (1988), that highlighted the occurrence of an overlooked species (*Streptospinigera templadoi* (San Martin, 1984)). Therefore, new data corresponded to 1005 georeferenced records, accounting for 35.6% of all georeferenced data, and 29.9% of all distributional data obtained. The new data presented spanned from 2014 to 2023 (with the exception of the 1984 record of *S. templadoi* here revised) and referred to a depth range from the surface to 969 m.

Overall, literature data accounted for 501 taxa (77%) out of total of 648 taxa included in this study, 294 of which (45%) were not retrieved by the new sampling sessions carried out, while 217 (33%) were in common with the 344 species (53%) found in the new sampling sessions. Conversely, the new sampling campaigns accounted for the identification of 137 taxa (21%) hitherto unknown along the Salento Peninsula (Fig. 3; Table 1). It is noteworthy that, in some cases, discrepancies between the dataset based on literature and the new data might be due to taxonomic updates. This is true in particular for several couples of congeneric taxa, such as *Bispira crassicornis* (Sars, 1851) and *Bispira mariae* Lo Bianco, 1893, or *Thelepus cincinnatus* (Fabricius, 1780) and *Thelepus parapari* Jirkov, 2018. In several cases, the record pre-dates relevant taxonomic revisions, or even the description of the species occurring in the study area, and most likely represents a misidentification. In other cases, the reference was published after the relevant revisions, but the datasets employed were probably older, and the use of outdated literature accounts for the discrepancies retrieved. To avoid information loss at this stage, we decided to include in the checklist also rather doubtful records that most likely represent misidentifications of species whose occurrence in the study area was confirmed by new data.

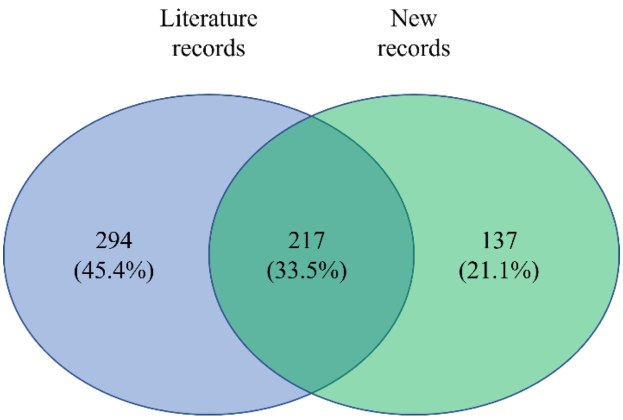

Figure 3. PERCENTAGE OF ALL SPECIES IDENTIFIED IN LITERATURE RECORDS, NEW DATA, OR BOTH DATASETS.

A comparison between the two sides of the Salento Peninsula showed a relatively even repartition of the species. 247 species, corresponding to 39% of all taxa recorded, were found along both coasts, while 196 (30.4%) and 192 (30.2%) were unique for the western and eastern coast, respectively (Fig. 4). This reconstruction was possible for 631 species out of the 648 recorded in the checklist, due to some literature references missing precise distributional data (see Material and Methods). In fact, some species reported by Bedulli et al. (1986) and/or Bianchi et al. (1989) for the study area have been subsequently confirmed by other publications on only one side of the peninsula, but their occurrence cannot be ruled out for the other side, and it is likely that the actual percentage of species in common between the two sides is higher than the one found in this study, while conversely the percentage of species unique to one side of the Salento peninsula is actually lower.

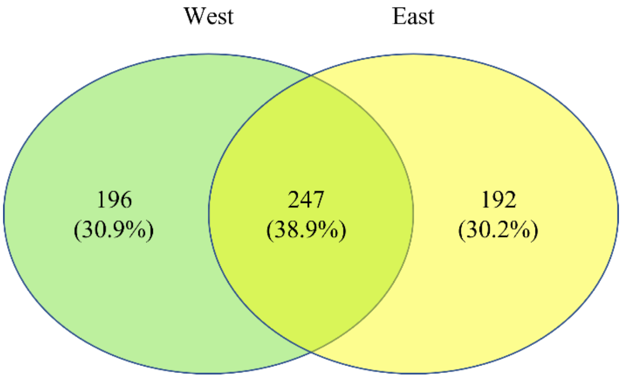

Figure 4. PERCENTAGE OF SPECIES UNIQUE TO EACH SIDE OF THE SALENTO PENINSULA AND COMMON TO THE TWO SIDES.

3.2 DISTRIBUTIONAL MAP OF MARINE ANNELIDA ALONG THE SALENTO PENINSULA

The gathered georeferenced distributional data allowed to reconstruct a distributional map of marine annelids along the coasts of Salento, highlighting in particular the occurrence of well-studied and scarcely studied areas and marine systems (Fig. 5).

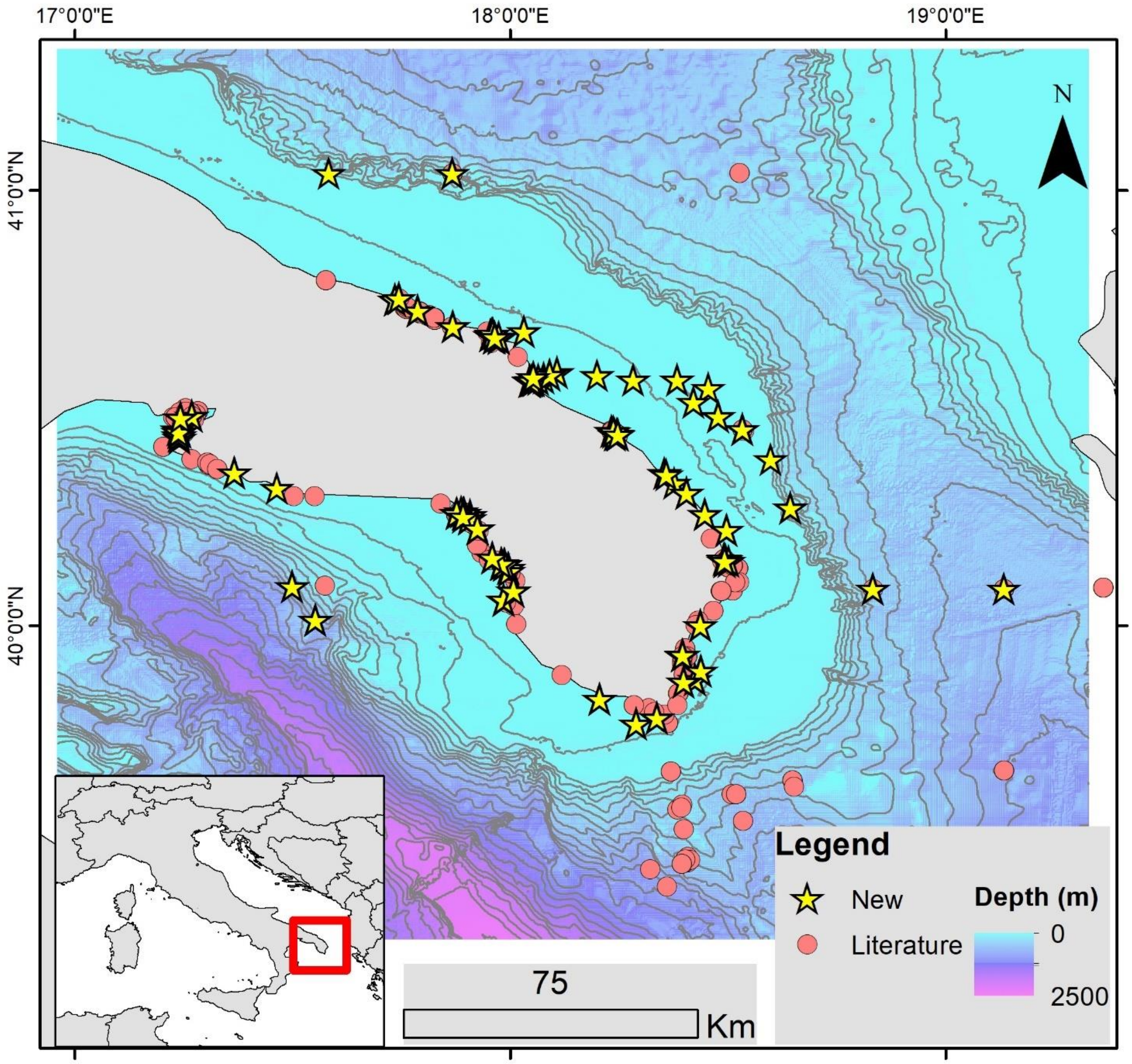

Figure 5. DISTRIBUTIONAL MAP OF MARINE ANNELIDS ALONG THE SALENTO PENINSULA

Georeferenced distributional data were available for 570 out of the 648 taxa recorded along the Salento coastline. The vast majority of georeferenced data refer to the coastal area, while only a few samples were obtained from the slope in the north-eastern part of the Ionian Sea. In fact, the annelid fauna occurring in the continental slope of the northern Ionian Sea is relatively well-known, as a sizable part of the material examined by Rullier &

Amoureux (1968) and Amoureux (1970) in a series of nine sampling campaigns in the Gulf of Taranto comes from environments deeper than 200 m; unfortunately, the published data referring to these campaigns do not allow to obtain georeferenced distributional points. The majority of publications dealing with annelid assemblages of the shelf area allow instead to reconstruct the distribution of the species encountered with some precision.

Georeferenced data points in literature are not evenly distributed along the Salento coastline (Fig. 5). In particular, the areas of Taranto (Fig. 6A) and Porto Cesareo (Fig. 6B) have been extensively studied, with georeferenced data spanning from the 1980s to 2023 and a relatively even coverage of the area and the habitats it includes.

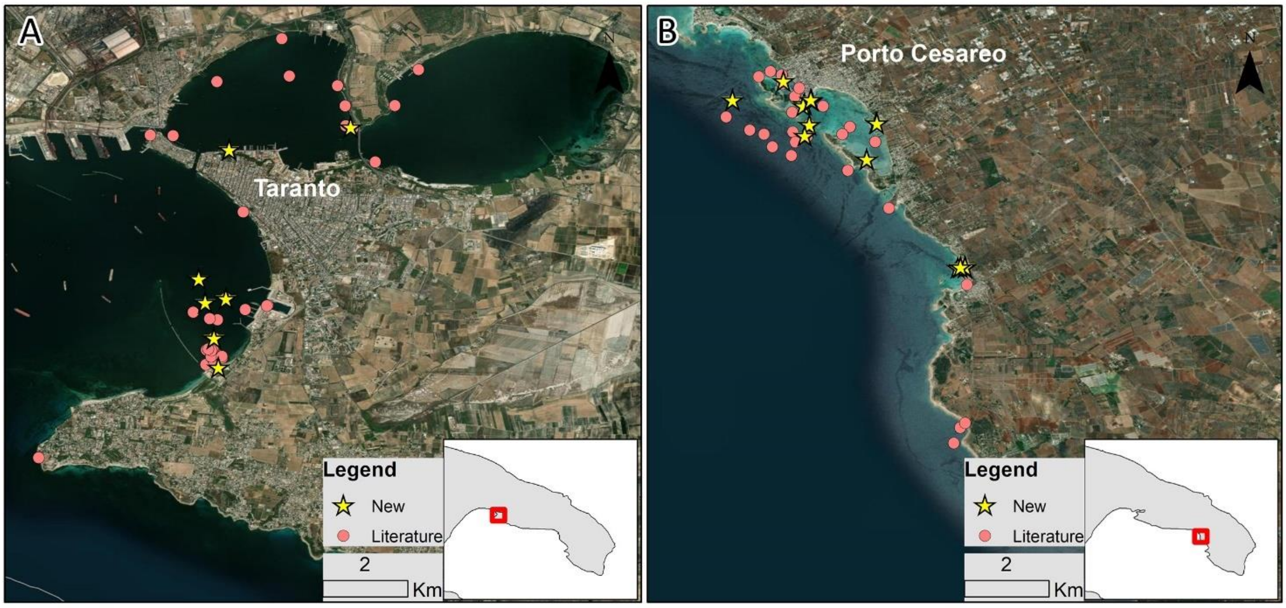

Figure 6. DISTRIBUTION OF HISTORICAL (BLUE DOTS) AND NEW (YELLOW STARS) GEOREFERENCED DATA POINTS OF MARINE ANNELID DISTRIBUTION IN THE TARANTO (A) AND PORTO CESAREO (B) AREAS.

Other areas, such as the coast between Brindisi and Otranto (approximately 80 km), the coast between Santa Maria di Leuca and Gallipoli (approximately 50 km), and the coast between Porto Cesareo and Marina di Pulsano (approximately 50 km) are almost completely unexplored according to the available literature (Figs. 5, 6) In fact, a sizable part of the data points mined from literature actually refer to a single species, the fireworm *Hermodice carunculata*, whose distribution was thoroughly mapped along the whole Mediterranean coastline (Righi et al., 2020). According to the available literature, therefore, the marine annelid fauna has been studied extensively only in a few localities, while it is virtually unknown for a significant part of the Salento coastline.

The sampling effort in the first year of the MAPWORMS project concentrated on scarcely studied environments. New samples allowed to obtain a rather dense cover of the area between Porto Cesareo and Gallipoli, increasing the knowledge of the coralligenous and mesophotic environments between Santa Maria di Leuca and Tricase and adding several data points for the largely unknown area between Brindisi and Otranto (Fig. 4). Notwithstanding this effort, the two stretches of coastline between Santa Maria di Leuca and Gallipoli, and Porto Cesareo and Marina di Pulsano remain largely unexplored, and the majority of the available data refer to the fireworm *Hermodice carunculata* (Pallas, 1766).

3.3 CHECKLIST OF MARINE ANNELIDA ALONG THE SALENTO PENINSULA

The final checklist of marine Annelida along the Salento Peninsula included 648 taxa, of which 591 were identified to the species level; 27 taxa were tentatively identified to the species level due to uncertainties surrounding their taxonomy, while 25 taxa were identified as potential new species, as they do not fully correspond to any of the species currently described in the respective genera. Finally, both in the literature examined and in the new material several individuals were identified only to the genus level, due to either the bad preservation or the growth stage, which did not allow a more detailed identification; these records were generally excluded from the final datasets, but 7 taxa, corresponding to the sole record of the genus in the study area, were included in the checklist (Table 1).

The taxa reported for the Salento coastline belonged to 62 families. The most species-rich family was Syllidae (108 species), followed by Sabellidae, Serpulidae, Phyllodocidae and Spionidae. On the other hand, 13 families (Acrocirridae, Arenicolidae, Aspidosiphonidae, Bonelliidae, Fauveliopsidae, Lacydoniidae, Longosomatidae, Melinnidae, Myzostomatidae, Paralacydoniidae, Pectinariidae, Sipunculidae, and Sternaspidae) included only one species each (Figure 7).

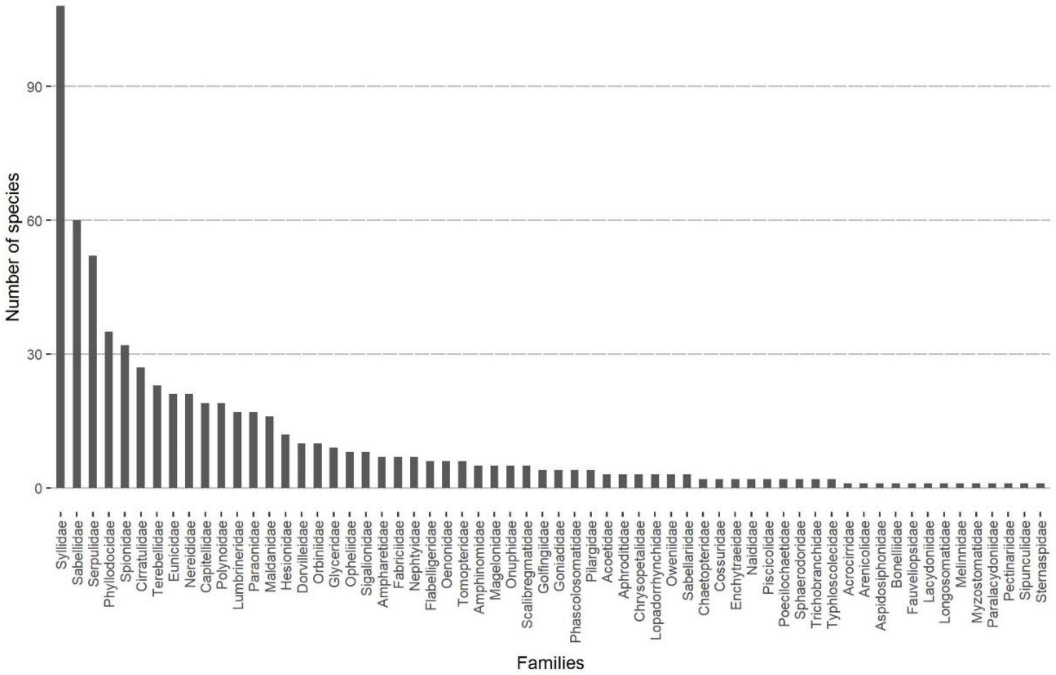

Figure 7. REPARTITION OF THE 648 TAXA RECORDED ALONG THE SALENTO COASTLINE AMONG THE 62 FAMILIES.

Potential undescribed species were found in 12 families. The highest number of potential new species was found in the family Sabellidae (11 potential new species), followed by Cirratulidae, Phyllodocidae, Serpulidae and Syllidae (2 potential new species each); only one potential new species was found in each of the following families: Ampharetidae, Dorvilleidae, Fabriciidae, Goniadidae, Opheliidae and Paraonidae. Out of the 23 potential undescribed species, 7 were already known as possible new species from literature (Bianchi, 1981; Gambi & Giangrande, 1988; Giangrande et al., 1999; San Martín, 2003; Guido et al., 2022; Teixeira et al., 2022a; Teixeira et al., 2023), while the remaining ones were identified on the basis of the newly examined material (Fig. 8).

8

Figure 7. ***OPHRYOTROCHA*** **SP. 1, A POTENTIALLY UNDESCRIBED SPECIES SAMPLED ALONG THE SALENTO PENINSULA.**

Among the already described species, 36 are known as species complexes according to published literature; however, molecular data referred to the Salento Peninsula are available only for the *Platynereis dumerilii* (Audouin & Milne Edwards, 1834)/*P. massiliensis* (Moquin-Tandon, 1869) species complex (Wäge et al., 2017; Teixeira et al., 2022b), while the genetic diversity of other known species complexes has not been assayed in the study area. In addition, 41 species are listed as non-indigenous in the Mediterranean Sea; in particular, the records of *Lepidonotus tenuisetosus* (Gravier, 1902) and *Paucibranchia* cf. *adenensis*

(Gravier, 1900) correspond to the first occurrences of these species along the Italian coastline, while the records of *Dorvillea similis* (Crossland, 1924) and *Pseudonereis anomala* Gravier, 1899 represent relevant extensions of the distribution of these species in the Northern Ionian Sea and the Southern Adriatic Sea. Based on a cross-check of the available literature, and in particular of critical lists of non-indigenous species, we identified 23 species as confirmed non-indigenous species (Fig. 9). In this case, the identity of the species is not subject to any kind of uncertainty, and its origin outside the Mediterranean Sea is not debated. Another 14 species were considered as questionable non-indigenous species. In this case, there are taxonomic uncertainties surrounding the identity of the species: while the nominal taxon would have origin outside the Mediterranean Sea, and thus represent a non-indigenous species, the uncertainty about its identity often does not allow to rule out the possibility of a native, overlooked congeneric species (Langeneck et al., 2020a). Lastly, 4 species were listed as cryptogenic where the identity of the species is not debated, but due to the presence of historical records, or the type locality within the Mediterranean Sea, the actual origin of the species cannot be determined with some certainty.

Figure 9. *DORVILLEA SIMILIS*, A NON-INDIGENOUS ANNELID FOUND FOR THE FIRST TIME ALONG THE SALENTO COASTLINE.

Table 1. ANNOTATED CHECKLIST OF THE MARINE ANNELIDA OCCURRING ALONG THE SALENTO COASTLINE. NEW RECORDS FOR THE STUDY AREA ARE HIGHLIGHTED IN BOLD, WHILE POTENTIAL MODEL SPECIES ARE UNDERLINED. "?" REFERS TO NON-GEOREFERENCED DATA IN BEDULLI ET AL. (1986) AND BIANCHI ET AL. (1989), THAT DO NOT ALLOW TO RECONSTRUCT WHETHER THE SPECIES IS REPORTED FOR THE WESTERN OR EASTERN SIDE OF THE PENINSULA.

Family	Species	West		East		Depth range (m)	Photos	Alien species	Species complex	Notes
		Lit.	New	Lit.	New					
Acoetidae Kinberg, 1856										
	Eupanthalis kinbergi McIntosh, 1876	x				119				
	Panthalis oerstedi Kinberg, 1856			x		115-427				
	Polyodontes maxillosus (Ranzani, 1817)	x				-				
Acrocirridae Banse, 1869										
	Acrocirrus frontifilis (Grube, 1860)	x				-				
Ampharetidae Malmgren, 1866										
	Ampharete acutifrons (Grube, 1860)	?		?		-				
	Ampharete grubei Malmgren, 1865	x				200-500				
	Amphicteis gunneri (M. Sars, 1835)	x		?		-				
	Amphicteis midas (Gosse, 1855)		x			60	x			
	Anobothrus gracilis (Malmgren, 1866)		x			50-60	x			
	***Anobothrus* sp. 1**				x	50-90	x			Small species belonging to the genus *Anobothrus*, clearly different from *A. gracilis* because of the absence of paleae on the first chaetiger.
	Sabellides octocirrata (M. Sars, 1835)	?		?		-				
Amphinomidae Lamarck, 1818										
	Amphinome rostrata (Pallas, 1766)				x	-	x			
	Chloeia venusta Quatrefages, 1866	x				200-800				

Euphrosine foliosa Audouin & Milne Edwards, 1833	?	x	x	x	1-60	x		
Hermodice carunculata (Pallas, 1766)	x	x	x	x	1-70	x		
Pareurythoe* cf. *borealis (M. Sars, 1862)				x	198	x		
Aphroditidae Malmgren, 1867								
***Aphrodita* sp.**		x			50	x		
Laetmonice hystrix (Savigny *in* Lamarck, 1818)	x		?		30-65			
Pontogenia chrysocoma (Baird, 1865)	?		x		5-15			
Arenicolidae Johnston, 1835								
Abarenicola claparedi (Levinsen, 1884)				x	0.5	x		
Aspidosiphonidae Baird, 1868								
Aspidosiphon muelleri Diesing, 1851	x	x	x	x	0-732	x		
Bonelliidae Lacaze-Duthiers, 1858								
Bonellia viridis Rolando, 1822	x	x	x		2-12	x		
Capitellidae Grube, 1862								
Capitella capitata (Fabricius, 1780)	x		x		0.5-12		x	Species complex (Grassle & Grassle, 1976; Boidin-Wichlacz et al., 2021). According to Blake et al. (2009), *C. capitata* s.s. is a subarctic species, while temperate records should be referred to *C. teleta* and other species.
Capitella minima Langerhans, 1880	x			x	9-19			
Capitella teleta Blake, Grassle & Eckelbarger, 2009				x	0.5	x		
Dasybranchus caducus Grube, 1846	x			x	11.5-250			
Dasybranchus gajolae Eisig, 1887	x			x	90-500	x		
Heteromastus filiformis (Claparède, 1864)	x	x	x	x	2-19			

Leiocapitella dollfusi (Fauvel, 1936)	x				85-500			
Mastobranchus trinchesii Ehlers, 1887	x				12			
Mediomastus capensis Day, 1961	x	x			2-12		Q	Questionable non-indigenous species (Langeneck et al., 2020a).
Mediomastus fragilis Rasmussen, 1973	x				12			
Neopseudocapitella brasiliensis Rullier & Amoureux, 1979	x			x	9-12		Q	Questionable non-indigenous species (Langeneck et al., 2020a).
Notomastus aberans Day, 1957	x	x	?		2-12		AL	
Notomastus* cf. *formianus Eisig, 1887		x			20	x		
Notomastus latericeus Sars, 1851	x	x	x	x	0-598	x		
Notomastus lineatus Claparède, 1869	?		?		-			
Notomastus mossambicus Thomassin, 1970	x				12		AL	
Pseudocapitella incerta Fauvel, 1913	x				-			
Pseudoleiocapitella fauveli Harmelin, 1964	x	x		x	2-20	x		
?*Pulliella* sp.	?	x			50	x		Species with uncertain generic assignment, found only one in a relatively deep detritic bottom. It might correspond to a bathyal undescribed species reported with a brief description by Rullier & Amoureux (1968) and Amoureux (1970) for the Gulf of Taranto.
Chaetopteridae Audouin & Milne Edwards, 1833								
***Phyllochaetopterus* sp.**		x			18			
Spiochaetopterus costarum (Claparède, 1869)	x				2-12			
Chrysopetalidae Ehlers, 1864								
Arichlidon reyssi (Katzmann, Laubier & Ramos, 1974)	?	x	?	x	50-90	x		
Chrysopetalum debile (Grube, 1855)	x	x	x	x	0.5-50	x		
Paleanotus chrysolepis Schmarda, 1861				x	1	x		
Cirratulidae Ryckholt, 1851								

Aphelochaeta filiformis (Keferstein, 1862)	x				12			
Aphelochaeta marioni (Saint-Joseph, 1894)	x		?		12-700			According to Blake (1991), the type material of *Aphelochaeta marioni* is currently lost, and the original description suggests that it included more than one species. More generally, the systematics of the genus *Aphelochaeta* in the Mediterranean Sea is scantily studied, and the occurrence of several undescribed species is likely (M. Lezzi, *pers. comm.*). For this reason, the majority of the new material belonging to this genus was not identified at the species level.
Aphelochaeta multibranchis (Grube, 1863)	x			x	11.5			
Caulleriella alata (Southern, 1914)	x		?		12			According to Lezzi (2017), the majority of the Mediterranean records of *C. alata* are likely to be referred to *C. mediterranea*. The species was not found in the newly examined material, therefore its actual occurrence along the Salento coastline is currently uncertain.
Caulleriella bioculata (Keferstein, 1862)	x	x	x		0.2-15	x		Fauvel (1927) considered *C. bioculata* and *C. viridis* as synonymous, despite the morphological differences occurring between the two species, and the different ecology (*C. bioculata* is typically associated with soft bottoms, while *C. viridis* occurs on hard bottoms). Since this reference was widey used for polychaete identification, it is possible that historical data referring to *C. bioculata* on hard substrates actually refer to *C. viridis*.
Caulleriella cabbsi Pocklington & Coates, 2010	x				12		AL	
Caulleriella mediterranea Lezzi, 2017		x			2			
Caulleriella viridis (Langerhans, 1880)		x		x	2-30	x		

***Caulleriella* sp. 1**		x		x	0-1	x	C		Rather distinctive undescribed species, characterised by the presence of both bidentate and unidentate hooks in the posterior chaetigers. It is similar to *Caulleriella trispina* Elias & Rivero, 2011, but it shows morphological differences. It corresponds to *Caulleriella* sp. A identified by Tempesti et al. (2020) in the port of Livorno. The occurrence of this species in port environments only suggests that it might be a non-indigenous species.
Chaetozone caputesocis (Saint-Joseph, 1894)	X				12-150				
Chaetozone carpenteri McIntosh, 1911	X				12				
Chaetozone corona Berkeley & Berkeley, 1941	X				12		AL		
Chaetozone gibber Woodham & Chambers, 1994	X				12				
Chaetozone setosa Malmgren, 1867	X		?		12			x	Species complex (Grosse et al., 2020; 2021a). The number and identity of species of the complex occurring in the Mediterranean Sea is still unknown.
Cirratulus cirratus (O. F. Müller, 1776)		x			2				
Cirriformia tentaculata (Montagu, 1808)	x	x	x		0.5-18	x			
***Cirriformia* sp. 1**				x	0.5	x			Short, stocky species occurring in brackish-water environments; the majority of records of *C. tentaculata* from Acquatina pond might actually refer to this taxon.
Dodecaceria concharum Örsted, 1843	X	x	x		0.5-2.7	x			According to Çinar & Dağli (2021), *D. concharum s.s.* probably does not occur in the Mediterranean Sea, where it is replaced by other species. At least two taxa with Mediterranean type locality have been historically put into synonymy with *D. concharum* and might represent valid species.
Fauvelicirratulus dollfusi (Fauvel, 1928)	x			x	90-500	x			

Kirkegaardia dorsobranchialis (Kirkegaard, 1959)	x				12		The Mediterranean *K. heterochaeta* was historically synonymised with the West-African *K. dorsobranchialis*; as a consequence, the latter was widely reported in the Mediterranean Sea. Blake (2016) redescribed the two taxa, highlighting differences that would justify their separation, and stated that *K. dorsobranchialis* most likely does not occur in the Mediterranean Sea.
Kirkegaardia heterochaeta (Laubier, 1961)	?		?	x	9-19		
Kirkegaardia marypetersenae (Lezzi, Çinar & Giangrande, 2016)	x	x			4-6		
Kirkegaardia setosa (Dean & Blake, 2009)	x				12	Q	Species with type locality off Costa Rica; if confirmed, it would represent a non-indigenous species. However, the genus *Kirkegaardia* potentially includes several undescribed species even in the Mediterranean Sea (Blake, 2016), and a careful examination of the material would be needed to ascertain its identity.
Protocirrineris chrysoderma (Claparède, 1868)	x				2.7-12		The genus *Protocirrineris* likely includes several Mediterranean species (M. Lezzi, *pers. comm.*). However, historical descriptions are often not very detailed, and redescriptions of type and topotypic material of historical taxa (including *P. chrysoderma*) are needed before starting to revise this genus. For this reason, newly sampled material was only identified at the genus level.
Protocirrineris purgamentorum Lezzi, Çinar & Giangrande, 2016	x				3		
Tharyx killariensis (Southern, 1914)		x			2		

Timarete filigera (Delle Chiaje, 1828)	x	x			0.5-14			The genus *Timarete* includes several Mediterranean species, some of which undescribed (M. Lezzi, *pers. comm.*). A redescription of the historical taxon *T. filigera* based on topotypic material from the Gulf of Naples is currently ongoing, and it is needed before starting to revise the diversity of this genus in Italian waters.
Cossuridae Day, 1963								
Cossura pygodactylata Jones, 1956	x				12			Individuals of *C. pygodactylata* and *C. soyeri* from the Gulf of Taranto possibly correspond to different ontogenetic stages of the same species.
Cossura soyeri Laubier, 1964	x				12			
Dorvilleidae Chamberlin, 1919								
Dorvillea rubrovittata (Grube, 1855)	x	x	x	x	2-50	x		
Dorvillea similis **(Crossland, 1924)**		x		x	0-1	x	AL	
Ophryotrocha japonica Paxton & Åkesson, 2010	x		x		-		AL	
Ophryotrocha labronica La Greca & Bacci, 1962	x				-			
***Ophryotrocha* sp. 1**		x		x	6-50	x		Undescribed species, associated with coralligenous and detritic environments in the infralittoral to high circalittoral zone, also identified in Greece (S. Faulwetter, *pers. comm.*). It is close to *Ophryotrocha mammillata* Ravara, Marçal, Wiklund & Hilário, 2015, but it is larger and shows morphological differences.
Parougia cf. caeca (Webster & Benedict, 1884)				x	70	x		
Pettiboneia urciensis Campoy & San Martin, 1982	x	x		x	5-20	x		
Protodorvillea kefersteini (McIntosh, 1869)	x	x	?	x	0.5-30	x		
Schistomeringos neglecta (Fauvel, 1923)		x		x	2-17	x		
Schistomeringos rudolphi (Delle Chiaje, 1828)	x	x	?	x	0.5-13	x		

Enchytraeidae d'Udekem, 1855									
Grania sp.	X								
Marionina sp.	X								
Eunicidae Berthold, 1827									
Eunice dubitata Fauchald, 1974			x		52				
Eunice floridana (Pourtalés, 1867)			x		60		Q		Questionable non-indigenous species (Langeneck et al., 2020a).
Eunice norvegica (Linnaeus, 1767)	x		x		451-1100				
Eunice oerstedii Stimpson, 1853			x		5-25				
Eunice pennata (O. F. Müller, 1776)	x	x	x	x	2-80	x			
Eunice roussaei Quatrefages, 1866			x	x	-				
Eunice schizobranchia Claparède, 1870	x			x	15-33	x			
Eunice vittata (Delle Chiaje, 1828)	x	x	x	x	2.7-90	x		x	Some very close species have been recently redescribed (Barroso et al., 2022a). Mediterranean material is likely to include more than one species. However, a redescription of topotypic individuals from the Gulf of Naples is needed to clarify the identity of this species.
Leodice harassii (Audouin & Milne Edwards, 1833)	x	x	x	x	3-70	x			
Leodice torquata (Quatrefages, 1866)	x	x	x	x	15-70	x			
Lysidice collaris Grube, 1869	x		x		5-70		AL		Kurt-Şahin & Çinar (2009) redescribed *L. margaritacea*, suggesting that the majority of Mediterranean records of *L. collaris* should be assigned to this native species. In fact, all individuals identified in the new material were found to belong to *L. margaritacea*, therefore the occurrence of *L. collaris* along the coast of Salento cannot be confirmed.
Lysidice margaritacea Claparède, 1868		x		x	30-90	x			
Lysidice ninetta Audouin & Milne Edwards	x		x	x	1-52	x		x	Species complex (Iannotta et al., 2009)

Lysidice unicornis (Grube, 1840)	x	x	x		0.5-25	x			
Marphysa sanguinea (Montagu, 1813)	x			x	1-12	x		x	Recently, *M. sanguinea* was demonstrated to be a complex of pseudocryptic species (Lavesque et al., 2017; Elgetany et al., 2018; Martin et al., 2020). Specimens from the Italian coastline have not been assayed from the molecular point of view and might include more than one species.
Palola siciliensis (Grube, 1840)	x	x	x		0-52	x			
Palola valida (Gravier, 1900)			x	x	1-52	x	AL		
Paucibranchia* cf. *adenensis (Gravier, 1900)				x	9		Q		The examined specimen corresponds to the description by Katsiaras et al. (2014) of material sampled in the Ionian and Aegean Seas. The species was originally described for the Indian Ocean and considered a Lessepsian migrant in the Mediterranean Sea. However, Molina-Acevedo (2018) pointed out some differences between the Mediterranean specimens and the type material that would justify a separation at the species level. Pending more detailed studies, we here consider *P. adenensis* as a questionable non-indigenous species in the Mediterranean Sea.
Paucibranchia bellii (Audouin & Milne Edwards, 1833)	x		x	x	0-500	x			
Paucibranchia cinari (Kurt-Şahin, 2014)				x	66-108				
Paucibranchia fallax (Marion & Bobretzky, 1875)	x	x	x	x	1-104	x			
Fabriciidae Rioja, 1923									
***Brifacia* sp. 1**		x		x	0				This species is rather widespread along the whole coastline of Salento in shallow environments. It shows differences towards the only other Mediterranean species of the genus *Brifacia* (*Brifacia aragonensis* Giangrande, Gambi, Micheli & Kroeker, 2014) and most likely represents an undescribed species.

Fabricia stellaris (O. F. Müller, 1774)	x		x		1.5-15			
Novafabricia cf. *infratorquata* (Fitzhugh, 1973)		x	x		5-50	x	Q	This species was considered as a non-indigenous species in the Italian checklist of annelids (Castelli et al., 2008). However, Licciano & Giangrande (2006) highlighted some differences towards the original description, and it might actually represent an undescribed species.
Novafabricia posidoniae Licciano & Giangrande, 2006			x		1.5-5			
Pseudofabricia aberrans Cantone, 1972	x		x		15			
Pseudofabriciola analis Fitzhugh, Giangrande & Simboura, 1994	x		x		22			
Pseudofabriciola longipyga Fitzhugh, Giangrande & Simboura, 1994		x			50	x		
Fauveliopsidae Hartman, 1971								
Fauveliopsis* cf. *glabra (Hartman, 1960)		x			50-60	x		The examined specimens correspond well to the description by López (2011) of Mediterranean material. However, all Mediterranean specimens have been sampled in circalittoral environments, while *F. glabra* is a bathyal to abyssal species originally described from the Pacific Ocean. Given the extremely simple anatomy of the Fauveliopsidae, it is likely that these specimens belong to an undescribed species.
Flabelligeridae Saint-Joseph, 1894								
Bradabyssa villosa (Rathke, 1843)	x				64			
Diplocirrus glaucus (Malmgren, 1867)	x	x			20	x		
Piromis eruca (Claparède, 1869)	x				-			
Stylarioides grubei Salazar-Vallejo, 2011	x				12		AL	
Stylarioides moniliferus Delle Chiaje, 1844	?		?		-			
Trophoniella cucullata Mancini, Bonifazi, Tiralongo & Lezzi, 2022				x	17			

Glyceridae Grube, 1850								
Glycera alba (O. F. Müller, 1776)	x	x	?	x	0.5-80	x		
Glycera capitata Örsted, 1842	x				12		Q	Although this species keeps being recorded along the Italian coasts (see Langeneck et al., 2020a), Böggemann (2002) considers this species as a cold-affinity species with bipolar distribution. The record for the coast of Salento is probably a misidentification.
Glycera celtica O'Connor, 1987	x				12			
Glycera fallax Quatrefages, 1850	x		?	x	11-20			
Glycera lapidum Quatrefages, 1866	x				-			
Glycera rouxii Audouin & Milne Edwards, 1833	x		?	x	4-500			Although Böggemann (2002) considered this taxon as synonymous with *G. unicornis*, we follow Parapar et al. (2015) in keeping the two taxa precautionarily separated.
Glycera tesselata Grube, 1863	x	x	x	x	50-90	x		
Glycera tridactyla Schmarda, 1861	x		?		-			
Glycera unicornis Lamarck, 1818	x			x	12-94			
Golfingiidae Stephen & Edmonds, 1972								
Onchnesoma steenstrupii Koren & Danielssen, 1876		x	x	x	60-732	x		
Phascolion (Isomya) convestitum Sluiter, 1902				x	17			
Phascolion (Phascolion) strombus (Montagu, 1804)			x		-			
Thysanocardia catharinae (Grube, 1868)				x	121-262			
Goniadidae Kinberg, 1866								
Goniada emerita Audouin & Milne Edwards, 1833				x	33	x		
Goniada maculata Örsted, 1843	x		x		5-52			
Goniada norvegica Örsted, 1845	x			x	198	x		

Progoniada sp. 1	?		?		-			The only specimen of this species found along the coast of Salento was considered by Gambi & Giangrande (1988) as potentially belonging to an undescribed species of *Progoniada*. This species was later sampled again in the Northern Tyrrhenian Sea, and specimens correspond well to the description by Gambi & Giangrande, being consistent with the genus *Progoniada*, even though molecular data point at a closeness with the genus *Goniadella* (J. Langeneck, *pers. obs.*).
Hesionidae Grube, 1850								
Amphiduros fuscescens Marenzeller, 1875				x	90	x		
Hesione splendida Lamarck, 1818	x				12		x	The *Hesione splendida* species complex has been revised based on morphological data by Salazar-Vallejo (2018), who highlighted the occurrence in the Mediterranean Sea of two different species, namely *Hesione pantherina* Risso, 1826 and *Hesione sicula* Delle Chiaje, 1830; *H. splendida s.s.* is a Red Sea species and does not occur in the Mediterranean Sea. The report of this species along the coast of Salento is probably due to the use of outdated literature, but it is impossible to establish if the species occurring in the Ionian Sea is *H. pantherina*, *H. sicula*, or both.
Hesiospina aurantiaca (M. Sars, 1862)	x	x			2-30			
Leocrates atlanticus (McIntosh, 1885)			x		691-704			
Neogyptis mediterranea (Pleijel, 1993)	x				12			
Nereimyra punctata (O. F. Müller, 1788)	x	X			2-12			
Oxydromus agilis (Ehlers, 1864)	x				1.5			
Oxydromus flexuosus (Delle Chiaje, 1827)	x	x		x	0-20	x		
Oxydromus pallidus Claparède, 1864	x	x		x	0.5-17			
Podarkeopsis arenicolus (La Greca, 1946)	?		?		-			

Psamathe fusca Johnston, 1836	x		x	x	5-70	x	
<u>*Syllidia armata*</u> Quatrefages, 1866	x	x		x	1-3	x	This species is reported as a non-indigenous species in European waters in the AquaNIS database, and for this reason it is included among the polychaete NIS in Lavrador et al. (2023). However, its type locality is around La Rochelle, in the North Sea, and therefore the species is most likely native in European waters.
Lacydoniidae Bergström, 1914							
Lacydonia miranda Marion, 1874		x		x	50-80	x	
Longosomatidae Hartman, 1944							
Heterospio mediterranea Laubier, Picard & Ramos, 1974	x				200-500		
Lopadorrhynchidae Claparède, 1870							
Lopadorrhynchus uncinatus Fauvel, 1915			x		900		
Maupasia coeca Viguier, 1886			x		900-1000		
Pedinosoma curtum Reibisch, 1895			x		900		
Lumbrineridae Schmarda, 1861							

Abyssoninoe emandibulata mabiti (Ramos, 1976)	?		?		-			This species, described as *Lumbrineris emandibulata mabiti* by Ramos (1976) was later assigned to the genus *Scoletoma* de Blainville, 1828, on the basis of the absence of compound chaetae. However, jaws and chaetae of *Lumbrineris emandibulata emandibulata* Pillai, 1961, and of *L. e. mabiti* correspond to those typical of the genus *Abyssoninoe* Orensanz, 1990. These taxa should be therefore moved to *Abyssoninoe*. Moreover, differences between the nominal subspecies and the Mediterranean one would be currently considered enough to separate them at the species level.
Gallardoneris nonatoi (Ramos, 1976)	x	x		x	2-13	x		
Lumbrineriopsis paradoxa (Saint-Joseph, 1888)			x		-			
Lumbrineris coccinea (Renier, 1804)	x	x	x	x	0-52	x		
Lumbrineris futilis Kinberg, 1865				x	732			
Lumbrineris geldiayi Carrera-Parra, Çinar & Dağli, 2011		x			20	x		
Lumbrineris gracilis (Ehlers, 1868)	x	x	x	x	2-15			Amoureux (1970) discussed the difference between *L. gracilis* and *L. latreilli* from marine environments of the Gulf of Taranto, suggesting the existence of a morphological continuum between the two forms. In fact, it is likely that the individuals examined did not belong to either of the two species, but to *L. pinaster*.
Lumbrineris latreilli Audouin & Milne Edwards, 1833	x	x	x	x	0.5-530	x		The record of *L. latreilli* from white coral banks off Santa Maria di Leuca (Mastrototaro et al., 2010) most likely refers to a different species.
Lumbrineris longipodiata Cantone, 1990		x			60	x		
Lumbrineris luciliae Martins, Carrera-Parra, Quintino & Rodrigues, 2012	x				12			
Lumbrineris lusitanica Martins, Carrera-Parra, Quintino & Rodrigues, 2012		x		x	2-70			
Lumbrineris perkinsi Carrera-Parra, 2001	x	x	x	x	0.5-2.7	x	AL	

Lumbrineris pinaster Martins, Carrera-Parra, Quintino & Rodrigues, 2012	x				12	
Ninoe armoricana Glémarec, 1968	x		?	x	80-700	
Scoletoma fragilis (O. F. Müller, 1776)	x		x		5-250	
Scoletoma funchalensis (Kinberg, 1865)	x		x		1-25	
Scoletoma laurentiana (Grube, 1863)	x		x	x	5-250	x
Magelonidae Cunningham & Ramage, 1888						
Magelona alleni Wilson, 1958	x		?		12	
Magelona equilamellae Harmelin, 1964		x			20	x
Magelona johnstoni Fiege, Licher & Mackie, 2000				x	6.5-9	
Magelona minuta Eliason, 1962	x			x	6.5-12	
Magelona mirabilis (Johnston, 1965)				x	5	
Maldanidae Malmgren, 1867						
Axiothella constricta (Claparède, 1868)	x				500-750	
Chirimia biceps (M. Sars, 1861)				x	600	
Euclymene collaris (Claparède, 1869)				x	11.5	
Euclymene lombricoides (Quatrefages, 1866)	x		?		-	
Euclymene oerstedii (Claparède, 1863)	x	x	?	x	2-12	
Euclymene palermitana (Grube, 1840)	x		?		-	
Leiochone leiopygos (Grube, 1860)	x			x	1.5-19	
Lumbriclymene minor Arwidsson, 1906	x				-	
Maldane glebifex Grube, 1860	x	x			6-73	
Micromaldane ornithochaeta Mesnil, 1897	x	x			1.5-2	
Nicomache lumbricalis (Fabricius, 1780)		x			0.5-2	x
Petaloproctus terricolus Quatrefages, 1866	x		x	x	0.5-24	
Praxillella* cf. *affinis (M. Sars *in* G. O. Sars, 1872)				x	17-19	
Praxillella gracilis (M. Sars, 1861)	x				80-500	

Praxillella praetermissa (Malmgren, 1865)	x	x		x	0.2-20	x
Rhodine gracilior Tauber, 1879	x				200-500	
Melinnidae Chamberlin, 1919						
Melinna palmata Grube, 1860	x	x	?		6-500	
Myzostomatidae Benham, 1896						
Myzostoma glabrum Graff, 1877			x		60	
Naididae Ehrenberg, 1831						
Heterodrilus maiusculus Erséus, 1988	x				4-5	
Limnodriloides appendiculatus Pierantoni, 1903	x		x			
Nephtyidae Grube, 1850						
Micronephthys longicornis (Perejaslavtseva, 1891)	x	x		x	6-20	x
Nephtys assimilis Örsted, 1843				x	5	
Nephtys hombergii Savigny *in* Lamarck, 1818	x				0-85	
Nephtys hystricis McIntosh, 1900	x		?		0-2760	
Nephtys incisa Malmgren, 1865	x				12-600	
Nephtys cf. *paradoxa* Malm, 1874			x		528-530	
Nephtys sinopensis Kuş, Kurt & Çinar, 2021				x	6.5-19	x
Nereididae de Blainville, 1828						
Ceratonereis vittata Langerhans, 1884		x			30	x
Composetia costae (Grube, 1840)	x	x	x	x	0.5-52	x
Composetia hircinicola (Eisig, 1869)		x		x	3-70	x

Hediste diversicolor (O. F. Müller, 1776)			x		0.5			x	Species complex, including at least five divergent lineages in the European waters, two of which have been recently described as new species (Teixeira et al., 2022c). Specimens from brackish-water environments of Salento have not been assayed from the molecular point of view, and their identity is currently uncertain.
Micronereis variegata Claparède, 1863			x		-				
Neanthes acuminata (Ehlers, 1868)	x	x	x	x	0.5-12	x			
Neanthes* cf. *nubila (Savigny, 1822)				x	33				
Neanthes rubicunda (Ehlers, 1868)		x			12				
Nereis cf. *agulhana* Day, 1963	x	x			0.5	x	Q		The identity of specimens reported as this taxon in the Mediterranean Sea is currently uncertain (Langeneck et al., 2020a) due to discrepancies towards the original description.
Nereis funchalensis (Langerhans, 1880)		x			2				
Nereis jacksoni Kinberg, 1865			x		15		AL		
Nereis lamellosa Ehlers, 1868			x		10-20				
Nereis rava Ehlers, 1868	x	x	x	x	0-60	x			
Nereis usticensis Cantone, Catalano & Badalamenti, 2003			x		5				
Nereis zonata Malmgren, 1867	x	x	x	x	0-25	x			
Perinereis cultrifera (Grube, 1840)	x	x	x	x	0-15	x		x	The occurrence of molecular, morphological and reproductive differences between populations assigned to this species in the European waters (Scaps et al., 2000; Maltagliati et al., 2001) suggest that it represents a species complex.
Perinereis rullieri Pilato, 1974		x		x	0.5	x			

Platynereis dumerilii (Audouin & Milne Edwards, 1833)	x	x	x	x	0-82	x		x	Species complex. The extended *P. dumerilii* species complex is split into two sub-clades, one including *P. dumerilii* s.s. and other species with presumed heteronereis form and indirect development, and another one including *P. massiliensis* and other species with presumed direct development (Teixeira et al., 2022b). Specimens from Salento are largely unknown from the molecular point of view, but the few available data in Wäge et al. (2017) and Teixeira et al. (2022b) allow to confirm the occurrence of *P. dumerilii* s.s. in the Apulian Ionian Sea.
Platynereis cf. *massiliensis* (Moquin-Tandon, 1869)	x			x	1-3	x		x	Species complex, including at least two divergent and potentially sympatric lineages (Wäge et al., 2017; Teixeira et al., 2022b). The original description of *P. massiliensis* is extremely scanty, and the identity of the specimens identified with this taxon is mostly based on their reproductive features (Teixeira et al., 2022b). Even the lineage identified in the Ionian Sea by Wäge et al. (2017) is further split into several sub-lineages, suggesting the occurrence of a complex genetic structure in this taxon.
Pseudonereis anomala Gravier, 1899				x	0-0.5	x	AL		
Websterinereis glauca (Claparède, 1870)	x				-				
Oenonidae Kinberg, 1865									
Arabella geniculata (Claparède, 1868)	x		x	x	1-100				
Arabella iricolor (Montagu, 1804)	x	x	x	x	0-15				
Arabella* cf. *longicirrata Hartmann-Schröder, 1979				x	19-20				This species was known until now only for circalittoral environments in the Eastern Atlantic Ocean (Hartmann-Schröder, 1979). Nonetheless, the individuals identified in this study correspond well to the original description.

Drilonereis filum (Claparède, 1868)	x	x	x	x	6-800			
Drilonereis* cf. *macrocephala Saint-Joseph, 1888		x			0.5	x		
Halla parthenopeia Delle Chiaje, 1828	?	x	?		6	x		
Onuphidae Kinberg, 1865								
Aponuphis bilineata (Baird, 1870)	x	x	?	x	9-115	x	x	Species complex, including at least four Mediterranean lineages (Borisova et al., 2018). Specimens from Salento have not been assayed from the molecular point of view, but two lineages co-occur in the Tyrrhenian Sea (Langeneck et al., 2022a).
Aponuphis brementi (Fauvel, 1916)	?		?		-		x	Species complex, including at least three Mediterranean lineages, showing some chromatic polymorphism (Borisova et al., 2018). Only one lineage was detected in the Mediterranean Sea, but data for the area are scanty, and the occurrence of additional lineages cannot be excluded.
Hyalinoecia tubicola (O. F. Müller, 1776)	x				-			
Nothria conchylega (M. Sars, 1835)			x		744-790			
Paradiopatra calliopae Arvanitidis & Koukouras, 1997	x			x	121-732			
Opheliidae Malmgren, 1867								
Armandia cirrhosa De Filippi, 1861	x	x	x	x	0.5-12	x		
Armandia polyophthalma Kükenthal, 1887	x	x			12			
Ophelia amoureuxi Bellan & Costa, 1988		x			50	x		
Ophelia barquii Fauvel, 1927	x		x		0-0.5			

***Ophelia* sp. 1**				x	5.5				Species morphologically close to *Ophelia bicornis* Savigny, 1922 and *O. barquii*, but smaller, with a stockier structure and a different ecology (occurring in coarse sand at around 5-10 m depth, rather than on fine sand in the intertidal zone). The same species was found also in the Tyrrhenian Sea and in the Levant Sea, and is genetically divergent from both *O. barquii* and *O. bicornis* (J. Langeneck, unpublished data).
Ophelina acuminata Örsted, 1843	x								
Ophelina modesta **Støp-Bowitz, 1958**		x							
Polyophthalmus pictus (Dujardin, 1839)	x	x	x	x	0-50	x			
Orbiniidae Hartman, 1942									
Gesaschroederella laubieri (Badalamenti & Castelli, 1991)	x	x			5	x			
***Leodamas* sp. 1**				x	0.5	x			This large species is characterised by branchiae beginning around the 25th chaetiger and three rows of thoracic subuluncini; both characters are rarely found in the genus, and none of the described species shows both characters (Blake, 2017; Sun et al., 2018; 2022). It most likely represents an undescribed species.
Naineris laevigata (Grube, 1855)	x	x	x	x	0.5-12	x			
Naineris setosa (Verrill, 1900)	x	x	x		6-12	x	AL		
Phylo foetida (Claparède, 1868)	x	x	x		0.5-18	x			
Phylo ligustica (Orlandi, 1896)	x				-				
Phylo norvegica (M. Sars *in* G. O. Sars, 1872)	x				-				
Protoaricia oerstedii (Claparède, 1864)	x	x		x	0-2	x			
Scoloplos armiger (O. F. Müller, 1776)				x	6.5-12			x	Species complex, including at least five divergent lineages worldwide (Bleidorn et al., 2006).
Scoloplos typicus (Eisig, 1914)	?		?	x	19				

Oweniidae Rioja, 1917									
Galathowenia oculata (Zachs, 1923)	x	x		x	9-20	x			
Myriochele danielsseni Hansen, 1878		x		x	15-50	x			
Owenia fusiformis Delle Chiaje, 1844	x		?	x	13	x		x	Species complex, including at least three divergent lineages in European waters (Koh & Bhaud, 2001; Lobo et al., 2016)
Paralacydoniidae Pettibone, 1963									
Paralacydonia paradoxa Fauvel, 1914	?		?		-				
Paraonidae Cerruti, 1909									
Aricidea assimilis Tebble, 1959	x	x	x	x	0.5-500	x		x	Species complex, including two lineages seemingly distributed across the whole Mediterranean Sea, but occurring at different depths (Langeneck et al., 2022b).
Aricidea bansei Laubier & Ramos, 1974	x			x	19				
Aricidea catherinae Laubier, 1967	x		?		12			x	Species complex, including several divergent lineages that seemingly do not structure a clade, three of which occurring in the Mediterranean Sea (Langeneck et al., 2019).
Aricidea cerrutii Laubier, 1966	x	x	?	x	0.5-50	x		x	Species complex, including at least two divergent Mediterranean lineages (Langeneck et al., 2019).
Aricidea claudiae Laubier, 1967		x		x	19-60	x			
Aricidea fragilis Webster, 1879	x				12		C		Cryptogenic species (Langeneck et al., 2018)
Aricidea katzmanni Erdoğan-Dereli & Çinar, 2020		x			20	x			
Aricidea monicae Laubier, 1967				x	121				
Cirrophorus branchiatus Ehlers, 1908				x	121				
Cirrophorus nikebianchii Langeneck, Barbieri, Maltagliati & Castelli, 2017	x	x	x	x	0.5-12	x			
Levinsenia demiri Çinar, Dağli & Acik, 2011	x			x	12-121				

Levinsenia flava Strelzov, 1973	x				12			Questionable occurrence in the study area. *Levinsenia flava* is a deep-sea species originally described from the Pacific Ocean (Strelzov, 1973) and its occurrence in shallow-water environments of the Ionian Sea might be a misidentification of the similar *Levinsenia tribranchiata* Çinar, Dağli & Acik, 2011, a shallow-water species with Mediterranean type locality.
Levinsenia* cf. *kantauriensis Aguirrezabalaga & Gil, 2009				x	598-969		x	Species complex; Mediterranean material includes at least two divergent lineages (Langeneck et al., 2019)
Paradoneis armata Glémarec, 1966	x		?	x	6.5-12			
Paradoneis ilvana Castelli, 1985	x	x		x	12-20	x		
Paradoneis lyra (Southern, 1914)	x		?		12			
***Paradoneis* sp. 1**				x	598			Deep-sea species, close to *Paradoneis mikeli* Aguirrezabalaga & Gil, 2009, but morphologically distinct.
Phascolosomatidae Stephen & Edmonds, 1972								
Apionsoma murinae bilobatae (Cutler, 1969)			x		765-790			
Phascolosoma* cf. *agassizii Keferstein, 1866				x	1	x		
Phascolosoma granulatum (Leuckart, 1828)			x		1			The distinction between *P. granulatum* and *P. stephensoni* has been uncertain until recently. In particular, specimens of *P. granulatum* identified following Murina (1981) should be actually referred to *P. stephensoni*. As all the newly examined material belongs to *P. stephensoni*, the occurrence of this species along the coast of Apulia is currently uncertain.
Phascolosoma stephensoni Stephen, 1942		x		x	0-33	x		
Pectinariidae Quatrefages, 1866								
Lagis koreni Malmgren, 1866	x				12			

Phyllodocidae Örsted, 1843									
Eulalia parva Saint-Joseph, 1898	x				12				According to WoRMS (Ahyong et al., 2023), this taxon is a *nomen dubium*. It might correspond to *Eulalia* sp. 1 examined by Teixeira et al. (2023).
Eulalia tripunctata McIntosh, 1874	?		?		-				
Eulalia sp. 1	x				12				This species was characterised from the molecular point of view by Teixeira et al. (2023). It is not very close to the *Eulalia clavigera* (Audouin & Milne Edwards, 1833) species complex, while it seems closer (but not identical) to *Eulalia viridis* (Linnaeus, 1767).
Eumida langenecki Teixeira, Vieira, Ravara, Costa & Nygren, 2022		x			0.5	x			
Eumida merope Nygren & Pleijel, 2011				x	50-90	x			
Eumida punctifera (Grube, 1860)			x		-				
Eumida* cf. *sanguinea Örsted, 1843		x		x	0-60			x	Species complex, including more than 20 species in the European waters (Nygren & Pleijel, 2011; Teixeira et al., 2022a). Different species can usually be easily distinguished based on their live colour, but fixed individuals are difficult or impossible to identify with some accuracy. Currently, at least two species of the complex (*E. langenecki* and *E. merope*) are known for the Salento coastline.
Eumida sp. 1	x				6				This species was characterised from the molecular point of view by Teixeira et al. (2022a). It does not belong to the *Eumida sanguinea* species complex, and is instead closely related to *Eumida ockelmanni* Eibye-Jacobsen, 1987.
Hesionura elongata (Southern, 1914)	x	x			5	x			
Hesionura serrata (Hartmann-Schröder, 1960)			x		5-10		Q		Questionable non-indigenous species according to Langeneck et al. (2020a).

Hypereteone foliosa (Quatrefages, 1865)	x	x			6-12			
Krohnia lepidota (Krohn, 1845)			x		600-1000			
Mysta picta (Quatrefages, 1866)	x		?		12			This species was reported in some references as *Eteone picta*/*Eteone syphodonta* (e.g. Bianchi et al., 1989). In fact, these two species are probably rather similar, but the original description of *Mysta syphodonta* (Delle Chiaje, 1830) is very scanty, and the distinction between them is not really clear. We here decided to tentatively assign all records along the coastline of Salento to the better known *M. picta*.
Naiades cantrainii Delle Chiaje, 1830			x		100-900			
Nereiphylla* cf. *lugens (Ehlers, 1864)			x		1	x		Although Fauvel (1923) considered this taxon as a junior synonym of *Nereiphylla paretti* de Blainville, 1828, this synonymy is most likely wrong, since *N. paretti* is a very large species, and the specimens described by Ehlers (1864) are mature individuals showing a rather small size. This species was found in the Northern Tyrrhenian Sea (Ravaglioli et al., 2023) and is characterised by stable differences towards the widespread *N. rubiginosa*.
Nereiphylla pusilla (Claparède, 1870)			x		5-25			
Nereiphylla rubiginosa (Saint-Joseph, 1888)	x		x	x	0.5-80	x	x	Species complex, including at least four mitochondrial lineages in the European waters, of which two occur in the Mediterranean Sea (Ulltin, 2019).
Notophyllum foliosum (M. Sars, 1835)			x		5-25		x	Species complex, including two species in the northern Atlantic Ocean (Eklöf et al., 2010). The identity of Mediterranean specimens assigned to this taxon has not been assayed with molecular techniques yet.
Paranaitis kosteriensis (Malmgren, 1867)		x		x	12-20	x		
Phyllodoce lamelligera Gmelin *in* Linnaeus, 1788	x		x		-			

Phyllodoce laminosa Savigny *in* Lamarck, 1818			x		-			
Phyllodoce lineata (Claparède, 1870)				x	20			
Phyllodoce* cf. *longipes Kinberg, 1866				x	90	x		The identity of European material assigned to this taxon is currently uncertain, since the type locality of *P. longipes* is in the southern Pacific Ocean (Langeneck et al., *subm.*).
Phyllodoce maculata (Linnaeus, 1758)				x	1			
Phyllodoce madeirensis Langerhans, 1880	?	x	?	x	0.5-50	x		
Phyllodoce mucosa Örsted, 1843	x		x		12-679			
Phyllodoce rosea (McIntosh, 1877)				x	121			
Phyllodoce vittata Ehlers, 1864			x		-			This species is considered a *nomen dubium* and might actually belong to the genus *Nereiphylla* de Blainville, 1828 (Pleijel, 1991).
Protomystides bidentata (Langerhans, 1880)		x		x	5.5-20	x		
Pseudomystides limbata (Saint-Joseph, 1888)	x	x		x	18-19	x		
Pterocirrus limbatus (Claparède, 1868)	x		x		12			
Pterocirrus macroceros (Grube, 1860)	x	x		x	0.5-30	x	x	Species complex, including at least three mitochondrial lineages in the European waters, of which two occurring in the Mediterranean Sea (Ulltin, 2019).
Rhynchonereella gracilis Costa, 1864			x		600			
Vanadis crystallina Greeff, 1876			x		210-900			
Vanadis formosa Claparède, 1870			x		900-1000			
Pilargidae Saint-Joseph, 1899								
Glyphohesione klatti Friedrich, 1950				x	121			
Pilargis verrucosa Saint-Joseph, 1899				x	121			

Sigambra parva (Day, 1963)	x				12		Q	Questionable non-indigenous species (Langeneck et al., 2020a). In general, the two species of *Sigambra* F. Müller, 1858 recorded in the Mediterranean Sea have type locality far away from this basin, and records assigned to these taxa might refer to undescribed species.
Sigambra tentaculata (Treadwell, 1941)	x	x		x	9-50	x		
Piscicolidae Johnston, 1865								
Branchellion torpedinis Savigny, 1822			x		-			
Pontobdella muricata (Linnaeus, 1758)			x	x	80	x		
Poecilochaetidae Hannerz, 1956								
Poecilochaetus fauchaldi Cantone & Pilato, 1976				x	11.5			
Poecilochaetus serpens Allen, 1904	x				12-550			
Polynoidae Kinberg, 1856								
Acholoe astericola (Delle Chiaje, 1841)	x				-			
Harmothoe antilopes McIntosh, 1876	x				12			
Harmothoe areolata (Grube, 1860)		x			2	x		
Harmothoe extenuata (Grube, 1840)	x			x	2.7-30	x		
Harmothoe fraserthomsoni McIntosh, 1897				x	33-82	x		
Harmothoe gilchristi Day, 1960				x	80			
Harmothoe* cf. *goreensis Augener, 1918				x	80			
Harmothoe imbricata (Linnaeus, 1767)	x				12			
Harmothoe impar (Johnston, 1839)		x	x		13-35	x		
Harmothoe longisetis (Grube, 1863)				x	969			
Harmothoe pagenstecheri Michaelsen, 1896			x		25-60			
Harmothoe spinifera (Ehlers, 1864)	x		x		5-25			

Harmothoe vesiculosa Ditlevsen, 1917			x		538-790				
<u>*Lepidonotus clava*</u> (Montagu, 1808)		x	x		0-0.5	x			
Lepidonotus squamatus (Linnaeus, 1758)	x				5				This north-European species was historically widely reported in the Mediterranean Sea, but Barnich & Fiege (2003) did not retrieve any specimen in their extensive revision of the Mediterranean scaleworms. The only record available might be a misidentification of either *Lepidonotus carinulatus* (Grube, 1869) or *L. tenuisetosus*.
<u>***Lepidonotus tenuisetosus***</u> (Gravier, 1902)				x	1	x	AL		The identity of this Lessepsian species was clarified by Chaibi et al. (2023). The individuals sampled in the harbour of Brindisi correspond perfectly to their redescription of the species.
Malmgrenia lunulata (Delle Chiaje, 1830)	?		?	x	5.5				
Polynoe scolopendrina Savigny, 1822		x		x	30-80	x			
Subadyte pellucida (Ehlers, 1864)		x	x	x	3-513	x			
Sabellariidae Johnston, 1865									
Phalacrostemma sp.			x		765-790				Individuals belonging to this genus, not identified to the species level, were found in deep-sea white coral reefs off the Salento Peninsula.
Sabellaria alveolata (Linnaeus, 1767)			x		-				
Sabellaria spinulosa (Leuckart, 1849)			x	x	0.5-2			x	Molecular data suggest that Mediterranean populations of *S. spinulosa* are genetically distinct from the Atlantic ones and might represent a different species (Schimmenti et al., 2015; Mucciolo & Desiderato, *in press*).
Sabellidae Latreille, 1825									
Acromegalomma adriaticum (Giangrande, Caruso, Mikac & Licciano, 2015)			x	x	10-82				

Acromegalomma cf. *claparedei* (Gravier, 1906)			x		5		Q		Questionable non-indigenous species (Langeneck et al., 2020a). The specimens reported for the coast of Salento show differences towards the original description and might represent an undescribed species.
Acromegalomma lanigerum (Grube, 1846)	x		x		1-25				
Acromegalomma messapicum (Giangrande & Licciano, 2008)			x		5				
Amphicorina armandi (Claparède, 1864)	x		x		1-25				
Amphicorina eimeri (Langerhans, 1880)		x	x	x	0-5				
Amphicorina grahamensis Giangrande, Montanaro & Castelli, 1999			x		-				
Amphicorina persinosa (Ben-Eliahu, 1975)			x	x	0.5-3	x			
Amphicorina sp. 1			x		1				This species, found off Otranto, does not match any known species of *Amphicorina* and might represent an undescribed species, even though the material examined was too badly preserved to proceed to a formal description (Giangrande et al., 1999).
Amphiglena gravinae Giangrande, Putignano, Licciano & Gambi, 2021			x		5				
Amphiglena cf. *mediterranea* (Leydig, 1851)	x	x	x	x	0-30	x		x	Molecular data showed that *A. mediterranea* as historically defined actually represents a very diverse species complex (Calosi et al., 2013). The resolution of the complex is hindered by the uncertain identity of *A. mediterranea* s.s.; in addition, Giangrande et al. (2021) attempted to clarify the identity of representatives of this genus along the coasts of Southern Italy. Nonetheless, the identity of the majority of the historical records of *A. mediterranea* is currently uncertain.
Amphiglena messapica Giangrande, Putignano, Licciano & Gambi, 2021	x				2				

Bispira crassicornis (M. Sars, 1851)	x				2.7			Even though this taxon has been reported rather frequently along the Mediterranean coastline, Giangrande (1989) stressed that it is a Nordic species and excluded it from the Mediterranean fauna. The only record predates Giangrande's (1989) revision and might refer to the widespread *B. mariae*.
Bispira mariae Lo Bianco, 1893		x			4-10			
Bispira viola (Grube, 1863)		x		x	0.5-7	x		
***Bispira* sp. 1**				x	90	x		Deep-water species, characterised by three to four rows of well-developed eyes along the radioles, which have sub-distally inflated tip. It shows some similarity with *Bispira primaoculata* Cepeda & Lattig, 2017, but it is probably different.
Branchiomma boholense (Grube, 1878)	x	x	x	x	0.2-14	x	AL	
Branchiomma bombyx (Dalyell, 1853)	x		x		5-14			
Branchiomma luctuosum (Grube, 1870)	x		x	x	0.5-14	x	AL	
Branchiomma lucullanum (Delle Chiaje, 1828)	x		x		2.5-10			
Branchiomma cf. *moebii* Knight-Jones, 1994			x		15			
***Branchiomma* sp. 1**		x			8			Small species with large, red eyes on the radioles, sampled in cave environments at shallow depths.
***Branchiomma* sp. 2**				x	70			Relatively frequent species in circalittoral environments, showing some similarities with *Branchiomma maerli* Licciano & Giangrande, 2008, but with a different shape of stylodes.

Chone filicaudata Southern, 1914	x		x		10		The identity of the material identified as *C. filicaudata* in the Mediterranean Sea is largely uncertain. This taxon was recently redescribed on the basis of topotypic material and belongs to the genus *Chone s.s.* (Wasson et al., 2017), but the syntype described by Tovar-Hernández et al. (2007) did not correspond to the original description, and was later assigned to the genus *Paradialychone* Tovar-Hernández, 2008. Depending on the literature source used for the identification, a large part of the specimens identified as *C. filicaudata* in the Mediterranean Sea might actually belong to an undescribed species of the genus *Paradialychone*.
Chone infundibuliformis Krøyer, 1856	?		?		-		This species is restricted to the Northern Atlantic Ocean, and was cited only in a list of species in a general ecology work (Bedulli et al., 1986). The genus *Chone* and allies have been the object of subsequent revisions, and it is likely that the record of *C. infundibuliformis* along the Salento coastline is just the consequence of the use of outdated literature.
Claviramus candela (Grube, 1863)				x	50-90	x	This species, originally described as *Sabella candela*, was transferred to the genus *Claviramus* as *Claviramus candelus* (Fitzhugh, 2002) and retained as such by WoRMS (Ahyong et al., 2023). However, "*candela*" is not an adjective, but a noun in apposition, and as such, indeclinable, and the correct name is *Claviramus candela*.
Dialychone acustica Claparède, 1868	x		?		10		
Dialychone arenicola (Langerhans, 1880)	x				23		
Dialychone collaris (Langerhans, 1880)	x	x	x		1.5-30	x	

Dialychone dunerificta (Tovar-Hernández, Licciano & Giangrande, 2007)	x	x	x	x	2-50	x	Tovar-Hernández et al. (2007) described *D. dunerificta*, stating that Mediterranean records of *Chone duneri* Malmgren, 1867 should actually be referred to this species. Accordingly, all records of *C. duneri* for the Salento coastline were referred to *D. dunerificta*.
Dialychone longiseta (Giangrande, 1992)	x				15		
Dialychone usticensis (Giangrande, Licciano & Castriota, 2006)				x	19		
Euchone pararosea Giangrande & Licciano, 2006		x			50	x	
Euchone pseudolimnicola Giangrande & Licciano, 2006		x	x		40-50	x	
Euchone rosea Langerhans, 1884	?		x		25		
Euchone rubrocincta (M. Sars, 1862)	x				-		
Euratella salmacidis (Claparède, 1869)	x		x		90-150		
Hypsicomus stichophthalmos (Grube, 1863)			x	x	33-90	x	
Jasmineira elegans Saint-Joseph, 1894		x	x		50	x	
Jasmineira* cf. *schaudinni Augener, 1912				x	50-90	x	
Myxicola aesthetica (Claparède, 1870)	x	x			2-25		
***Myxicola* sp. 1**				x	70-90	x	These two species are rather similar, as they share rather peculiar abdominal hooks that have not been described for any other species of the genus *Myxicola*, and they are clearly related. However, *Myxicola* sp. 1 is a larger, stockier species with a greenish branchial crown occurring in mesophotic biogenic constructions, while *Myxicola* sp. 2 is smaller, slender and characterised by a bright red branchial crown with whitish tips, and occurs in coralligenous environments and caves. These species are clearly smaller than the ones belonging to the complex of

***Myxicola* sp. 2**				x	5-33	x	*Myxicola infundibulum* (Montagu, 1808), which was revised along the coast of Apulia by Putignano et al. (*in press* a), but have eight thoracic chaetigers, that allow to exclude the group of species close to *M. aesthetica*. They might be close to some small, poorly known species, as *Myxicola modesta* Quatrefages, 1866, *Myxicola parasites* Quatrefages, 1866, and *Myxicola viridis* McIntosh, 1923, but further studies are needed to ascertain their identity and their distinction from other taxa.
***Myxicola* sp. 3**		x		x	2		Species belonging to the *Myxicola infundibulum* species complex, formally described by Putignano et al. (*in press* a)
***Myxicola* sp. 4**		x			2-17		
Parasabella langerhansi (Knight-Jones, 1983)	x		x	x	1-14	x	
Parasabella saxicola (Grube, 1861)			x		5		
Parasabella tenuicollaris (Grube, 1861)	x		x		1.5-14		
Parasabella tommasi (Giangrande, 1994)	x		x		7-15		
Perkinsiana rubra (Langerhans, 1880)	x		x		15		
Perkinsiana socialis (Langerhans, 1884)			x	x	0-90	x	
***Perkinsiana* sp. 1**				x	30	x	Potentially undescribed species of the genus *Perkinsiana*, associated with coralligenous outcrops.

Pseudopotamilla reniformis (Bruguière, 1789)	x		x		2.7-5		x	Çinar & Dağli (2021) identified two potentially undescribed rock-boring species of the genus *Pseudopotamilla* in the Aegean Sea, even though the material examined was in rather bad conditions and would not allow to formally describe them. More generally, *P. reniformis* has type locality off Iceland (Knight-Jones et al., 2017) is not a rock boring species, and most likely does not occur in the Mediterranean Sea. Iroso (1921) described several species of *Pseudopotamilla* from the Gulf of Naples, that were put into synonymy with *P. reniformis*, and later on *P. saxicava*, but might represent (at least part of them) valid species. A re-examination of these descriptions and of type and topotypic material is needed to ascertain the identity of the Mediterranean species of *Pseudopotamilla*. In the meanwhile, the newly collected material was assigned to two provisional species showing morphological and ecological differences.
Pseudopotamilla saxicava (Quatrefages, 1866)			x		1.5-5			
***Pseudopotamilla* sp. 1**		x		x	30-80	x		Species with small, purple eyes and mottled branchial crown occurring on coralligenous outcrops and in mesophotic bioconstructions.
***Pseudopotamilla* sp. 2**		x			0.5	x		Species with large, bright red eyes, and green branchial crown with orange tips, occurring in the intertidal area.
Sabella discifera (Grube, 1863)	x	x		x	1-14	x		
Sabella pavonina Savigny, 1822	x				2-14			
Sabella spallanzanii (Gmelin, 1791)	x	x	x	x	0-15	x		

Sabella tarantoensis (Knight-Jones & Giangrande, 2003)	x				10		This species was originally assigned to *Pseudobranchiomma* Jones, 1962; however, a re-examination of the type material showed the occurrence of companion chaetae in the thorax, which should be absent in *Pseudobranchiomma*. For this reason, the species was redescribed and assigned to *Sabella* (Putignano et al., *in press* b).
Scalibregmatidae Malmgren, 1867							
Asclerocheilus intermedius (Saint-Joseph, 1894)		x		x	30-33	x	
***Axiokebuita* sp.**		x			50	x	The genus *Axiokebuita* is known from two species, namely *Axiokebuita minuta* (Hartman, 1957), with bipolar Atlantic distribution, and *Axiokebuita cavernicola* Martinez, Di Domenico & Worsaae, 2013, associated with anchialine caves in the Canary Islands (Martinez et al., 2013). The only specimen found along the Salento coastline represents the first occurrence of the genus in the Mediterranean Sea, and was sampled in debris under gorgonians on a shoal in the Ionian Sea. It most likely represents an undescribed species.
Pseudoscalibregma parvum (Hansen, 1878)	x				200-500		
Scalibregma inflatum Rathke, 1843	x				200-500		
Sclerocheilus minutus Grube, 1863		x		x	2-50	x	
Serpulidae Rafinesque, 1815							
Bathyvermilia eliasoni (Zibrowius, 1970)			x		60-1146		
Ditrupa arietina (O. F. Müller, 1776)		x	?		2		
Filograna implexa Berkeley, 1835	x		x		2-807		
Filogranula annulata (O. G. Costa, 1861)			x		8-60		
Filogranula calyculata (O. G. Costa, 1861)	?		x		52-60		

Filogranula gracilis Langerhans, 1884		x		8-807				
Filogranula stellata (Southward, 1963)		x		8-678				
Hyalopomatus madreporae Sanfilippo, 2009		x		497-790				
Hydroides dianthus (Verrill, 1873)	x		x	0.5-14	x	C	x	Species complex (Sun et al., 2017; Grosse et al., 2021b). Sun et al. (2017) convincingly demonstrated that *H. dianthus* s.s. is native in the Mediterranean Sea; however, a sibling species seems to be native in the Caribbean region, and has been subsequently reported in Mediterranean port environments (Grosse et al., 2021b). Molecular data are not available for individuals sampled along the Salento coastline.
Hydroides dirampha Mörch, 1863	x		x	1-14	x	AL		
Hydroides elegans (Haswell, 1883)	x	x	x	1-60	x	AL	x	Species complex (Grosse et al., 2021b). All lineages assigned to this species seem to be non-indigenous in the Mediterranean Sea. The record by Micaroni et al. (2022) for coralligenous environments should probably be referred to *H. norvegica*, as *H. elegans* is typical of anthropised environments with variable salinity.
Hydroides helmata (Iroso, 1921)	x	x		2-6				
Hydroides nigra Zibrowius, 1971	x	x		1.5-14				
Hydroides norvegica Gunnerus, 1768			x	80-198	x			
Hydroides pseudouncinata Zibrowius, 1968	x	x	x	0-70	x			
Hydroides stoichadon Zibrowius, 1971	x	?		2-14				
Janita fimbriata (Delle Chiaje, 1822)		x		8-679				
Janua heterostropha (Montagu, 1803)	?	x		5-60				
Josephella marenzelleri Caullery & Mesnil, 1896		x	x	0.5-60				
Metavermilia multicristata (Philippi, 1844)		x		52-807				
Neodexiospira pseudocorrugata (Bush, 1905)		x		52-60				
Nidificaria clavus (Harris, 1968)		x		52				

Pileolaria heteropoma (Zibrowius, 1968)		x		52-60			
Pileolaria militaris Claparède, 1870		x	x	0.5-60			
Placostegus tridentatus (Fabricius, 1779)		x		52-60			
Placostegus sp. 1		x		52-60			This species was commonly reported as *Placostegus crystallinus* (Scacchi, 1836). However, this taxon is synonymouys with *P. tridentatus*. The majority of the records of *P. crystallinus* in the Mediterranean Sea refer to a species identified as *Vermilia crystallina* by Philippi (1844) and referred to as *Placostegus crystallinus sensu* Zibrowius (1968) by Bianchi (1981). This taxon is most likely an undescribed species.
Protolaeospira striata (Quiévreux, 1963)		x		52-60			
Protula cf. *tubularia* (Montagu, 1803)	x	x	x	8-90	x	x	The diversity of the genus *Protula* in the Mediterranean Sea is uncertain and has not been the subject of revisions (Bianchi, 1981). Although the majority of the records along the Apulian coast refer to *P. tubularia*, it is likely that these records include more than one species (Causio et al., 2015; Guido et al., 2022).
Protula sp. 1		x		8			This species is associated to submarine caves, where it forms biostalactites (Belmonte et al., 2009). The available molecular data point to a distinction towards the allegedly widespread *P. tubularia*, but the material examined is limited (Causio et al., 2015).
Semivermilia agglutinata (Marenzeller, 1893)		x		52-60			
Semivermilia crenata (O. G. Costa, 1861)		x		8-60			
Semivermilia cribrata (O. G. Costa, 1861)		x		8-60			
Semivermilia pomatostegoides (Zibrowius, 1969)		x		8-60			
Serpula cavernicola Fassari & Mollica, 1991		x		52-60			
Serpula concharum Langerhans, 1880	x	x		1.5-60			

Serpula israelitica Amoureux, 1977			x	x	60-198	x	
Serpula lobiancoi Rioja, 1917			x		52-60		
Serpula vermicularis Linnaeus, 1767	x	x	x	x	2-665	x	
Simplaria pseudomilitaris (Thiriot-Quiévreux, 1965)	x				6-14		
Spiraserpula massiliensis (Zibrowius, 1968)			x		52-60		
Spirobranchus lamarcki (Quatrefages, 1866)	x		x		2-14		
Spirobranchus lima (Grube, 1862)			x		60		
Spirobranchus polytrema (Philippi, 1844)			x		1.5-60		
Spirobranchus triqueter (Linnaeus, 1758)	x		x	x	2-60	x	
Spirorbis cuneatus Gee, 1964			x		2-60		
Spirorbis infundibulum Harris & Knight-Jones, 1964			x		-		
Spirorbis marioni Caullery & Mesnil, 1897			x		52-60		AL
Vermiliopsis infundibulum (Philippi, 1844)	x		x	x	25-90	x	
Vermiliopsis labiata (O. G. Costa, 1961)	x		x	x	8-60	x	
Vermiliopsis monodiscus Zibrowius, 1968			x		60		
Vermiliopsis striaticeps (Grube, 1862)	x		x	x	0-60	x	
Vinearia koehleri (Caullery & Mesnil, 1897)			x		60		
Sigalionidae Kinberg, 1856							
Claparedepelogenia inclusa (Claparède, 1868)	x		?		33		
Euthalenessa oculata (Peters, 1854)	x				-		
Labioleanira yhleni (Malmgren, 1867)	x				-		
Pelogenia arenosa (Delle Chiaje, 1830)	x				-		
Pholoe inornata Johnston, 1839	x	x			3-12	x	
Pisione remota (Southern, 1914)	x				-		
Sigalion mathildae Audouin & Milne Edwards, 1832			x	x	7-19		
Sthenelais boa Johnston, 1833	x	x			20-50	x	

Sipunculidae Rafinesque, 1814								
Sipunculus nudus Linnaeus, 1766				x	11.5			
Sphaerodoridae Malmgren, 1867								
Geminofilum garciaalvarezi (Moreira, Cacabelos & Troncoso, 2004)		x			6			
Sphaerephesia artabrensis (Moreira & Parapar, 2007)	X				2			
Spionidae Grube, 1850								
Aonides oxycephala (M. Sars, 1862)	x	X	?		2-12			
Atherospio guillei (Laubier & Ramos, 1974)	x				12			
Boccardia semibranchiata Guérin, 1990				x	0.5	x		
Dipolydora flava (Claparède, 1870)	x				12			
Laonice cirrata (M. Sars, 1851)	x		x		200-500			This sub-Arctic species was historically reported in the Mediterranean Sea. However, the description and the drawings in the most widespread source for polychaete identification (Fauvel, 1927) actually refer to *L. grimaldii* (Sikorski et al., 2021). Therefore, records of *L. cirrata* in the Mediterranean Sea are most likely misidentifications of other taxa.
Laonice grimaldii Sikorski, Nygren & Mikac, 2021				x	50	x		
Laonice mediterranea Sikorski, Nygren & Rousou, 2021		x			50	x		
Malacoceros fuliginosus (Claparède, 1868)	x		x	x	0.5-12	x		
Malacoceros girardi Quatrefages, 1843	?		?		-			
Microspio mecznikowiana (Claparède, 1869)				x	5.5-50	x		
Polydora ciliata (Johnston, 1838)			x		-			
Polydora hoplura Claparède, 1868	x				2.7			
Prionospio caspersi Laubier, 1962				x	6.5-19			
Prionospio cirrifera Wirén, 1883	x	x	?	x	2-19			
Prionospio depauperata Imajima, 1990	x	x			2-20	x	AL	

Prionospio ehlersi Fauvel, 1928	x				200-500				
Prionospio maciolekae Dağli & Çinar, 2011	x	x			2-50	x			
Prionospio malmgreni Claparède, 1869	?		?		-				
Prionospio multibranchiata Berkeley, 1927	x				12		AL		Mediterranean material assigned to *P. multibranchiata* was re-described as *P. maciolekae* (Dağli & Çinar, 2011). The occurrence of this species in the Mediterranean Sea is questionable.
Prionospio pulchra Imajima, 1990	x	x			12		AL		
Prionospio steenstrupi Malmgren, 1867				x	121				
Pseudopolydora paucibranchiata (Okuda, 1937)	x				5-12		AL		
Pseudopolydora pulchra (Carazzi, 1893)		x			12				
Scolelepis (Parascolelepis) tridentata (Southern, 1914)	x			x	6.5				
Scolelepis (Scolelepis) cantabra (Rioja, 1918)	x			x	19				
Scolelepis (Scolelepis) squamata (O. F. Müller, 1806)	x				-				
Spio decorata Bobretzky, 1870			x	x	0.5	x			
Spio filicornis (O. F. Müller, 1776)	x		x		12			x	Individuals of *S. filicornis* from different areas in the North and Baltic Seas show stable morphological differences, suggesting that this taxon might actually include more than one species (Bick et al., 2010).
Spio martinensis Mesnil, 1896	x				12				
Spiophanes cf. adriaticus D'Alessandro, Castriota, Maggio, Nasi, Carletti, Auriemma, Romeo & Del Negro, 2020				x	9				
Spiophanes bombyx Claparède, 1870	x				-				
Spiophanes reyssi Laubier, 1964	x				200-500				
Sternaspidae Carus, 1863									
Sternaspis scutata (Ranzani, 1817)	x		?		200-500				

Syllidae Grube, 1850								
Anoplosyllis edentula **Claparède, 1868**		x			6			
Branchiosyllis exilis (Gravier, 1900)	x		x		1.5-5			This species is considered circumtropical, albeit specimens from different localities show slight morphological differences (Alvarez-Campos et al., 2012). The similar *Branchiosyllis cirropunctata* (Michel, 1909), with type locality in the Gulf of Naples, was historically considered synonymous, but it has been re-evaluated as a valid species by San Martin et al. (2008), and it is likely that the majority of Mediterranean records actually refer to this species.
Brania arminii (Langerhans, 1881)	x	x	x	x	0-5	x		
Brania pusilla (Dujardin, 1851)	x	x	x	x	0-15			
Brevicirrosyllis weismanni (Langerhans, 1879)				x	90			
Dioplosyllis cirrhosa Gidholm, 1962		x			50	x		
Epigamia macrophthalma (Marenzeller, 1875)			x	x	82	x		
Erinaceusyllis belizensis (Russell, 1989)	x	x	x		1.5-12		Q	Questionable non-indigenous species in the Mediterranean Sea (Langeneck et al., 2020a).
Erinaceusyllis cryptica (Ben-Eliahu, 1977)		x	x		2			
Erinaceusyllis serratosetosa (Hartmann-Schröder, 1982)			x		1.5		Q	Questionable non-indigenous species in the Mediterranean Sea. The first description of a Mediterranean specimen (San Martin, 2003) showed some morphological differences with the original description (i.e., absence of eyes), but further records along the Italian coastline showed the occurrence of a continuum between individuals corresponding to the original description and individuals with very small eyes (Langeneck et al., 2020a).
Eurysyllis tuberculata Ehlers, 1864	x	x	x	x	1.5-82	x		
Eusyllis assimilis Marenzeller, 1875			x	x	30-80	x		
Eusyllis lamelligera Marion & Bobretzky, 1875	x		x		1.5-25			

Exogone dispar (Webster, 1879)	x	x	x	x	0-5	x	
Exogone naidina Örsted, 1845	x	x	x	x	0-50	x	
Exogone rostrata Naville, 1933		x	x		2-5		
Exogone verugera (Claparède, 1868)	x	x	x	x	2-19		
Haplosyllis spongicola (Grube, 1855)	x	x	x	x	1.5-90	x	
Inermosyllis balearica (San Martin, 1982)	x				1.5-25		
Myrianida brachycephala (Marenzeller, 1874)			x	x	0-5		Along the coast of Salento this species was reported as both *Autolytus brachycephalus* Marenzeller, 1874, and *Autolytus benazzii* Cognetti, 1953. These two species have been considered synonymous by Nygren (2004), but they show morphological differences and might actually be distinct.
Myrianida convoluta (Cognetti, 1953)			x		-		
Myrianida edwardsi (Saint-Joseph, 1887)			x		1.5		
Myrianida inermis (Saint-Joseph, 1887)	x				1.5		
Myrianida longoprimicirrata (López, San Martín & Jiménez, 1997)				x	80	x	
Myrianida pinnigera (Montagu, 1808)	x	x			2.7-3	x	
Myrianida prolifera (O. F. Müller, 1788)	x		x	x	5-25	x	
Myrianida quindecimdentata (Langerhans, 1884)	x		x		5		
Myrianida rubropunctata (Grube, 1860)	x			x	25-90	x	
Nudisyllis pulligera (Krohn, 1852)			x		1.5-5		
Odontosyllis ctenostoma Claparède, 1868	x	x	x	x	0.5-50	x	
Odontosyllis fulgurans (Audouin & Milne Edwards, 1833)		x	x		2-5		
Odontosyllis gibba Claparède, 1863	x	x	x	x	12-50	x	
Opisthodonta longocirrata (Saint-Joseph, 1887)		x	x		6	x	
Opisthodonta serratosetosa (López, San Martín & Jiménez, 1997)			x	x	82	x	
Paraehlersia ferrugina (Langerhans, 1881)	x		x		1.5-15		

***Paraehlersia* sp. 1**		x			50	x		This species is characterised by some differences towards the typical *P. ferrugina*, in particular referring to the length and shape of dorsal cirri, and the size of eyes, and it might represent an undescribed species.
Parapionosyllis brevicirra Day, 1954	x	x	x		1.5-50	x		
Parapionosyllis elegans (Pierantoni, 1903)	x				-			
Parapionosyllis gestans (Pierantoni, 1903)	x				-			
Parapionosyllis labronica Cognetti, 1965	x				-			
Parapionosyllis minuta (Pierantoni, 1903)	x	x	x	x	2-11.5			
Parexogone convoluta (Campoy, 1982)		x			2			
Parexogone gambiae (Lanera, Sordino & San Martin, 1994)		x		x	50-80	x		
Parexogone meridionalis (Cognetti, 1955)	x		x		-			
Perkinsyllis anophthalma (Capaccioni & San Martin, 1990)	x		x		12			
Plakosyllis brevipes Hartmann-Schröder, 1956		x		x	5.5-20	x		
Proceraea aurantiaca Claparède, 1868			x	x	0.5-33	x	x	Species complex, including at least two species (*P. aurantiaca* and *Proceraea paraurantiaca* Nygren, 2004) which are difficult to discriminate, especially based on fixed material (Nygren, 2004).
Proceraea picta Ehlers, 1864				x	50	x		
Prosphaerosyllis adelae (San Martin, 1984)		x		x	5-17	x		
Prosphaerosyllis campoyi (San Martín, Acero, Contonente & Gómez, 1982)	x	x	x		5-50			
Prosphaerosyllis tetralix (Eliason, 1920)	x				-			
Prosphaerosyllis xarifae (Hartmann-Schröder, 1960)	x		x	x	5.5-12			
Pseudosyllis brevipennis Grube, 1863	x		x	x	1-80	x		This species is reported as both *Pseudosyllis brevipennis* and *Trypanosyllis coeliaca* Claparède, 1868. The two taxa are currently considered synonymous (Alvarez-Campos et al., 2017a), but when they are in the same species list, they might refer to more than one species.

Salvatoria alvaradoi (San Martin, 1984)	x				5			
Salvatoria clavata (Claparède, 1863)	x	x	x	x	0-15	x		
Salvatoria euritmica (Sardá, 1984)	x		x		5-12			
Salvatoria limbata (Claparède, 1868)	x		x	x	0-15	x		
Salvatoria vieitezi (San Martin, 1984)		x	x	x	2-17			
Salvatoria yraidae (San Martin, 1984)	x		x		15			
Sphaerosyllis boeroi Musco, Çinar & Giangrande, 2005	x		x		1.5-25			
Sphaerosyllis bulbosa Southern, 1914		x			50	x		
Sphaerosyllis glandulata Perkins, 1981	x	x		x	1-12			
Sphaerosyllis hystrix Claparède, 1863	x		x		1-52		x	This species, historically considered as morphologically variable, has been recently re-evaluated as a species complex (Faulwetter et al., 2011). While some species of the complex have already been described (Musco et al., 2005; Alvarez & San Martin, 2009; Faulwetter et al., 2011), it is possible that more species are hidden under this taxon.
Sphaerosyllis parabulbosa San Martín & López, 2002	x				12			
Sphaerosyllis pirifera Claparède, 1868	x	x	x	x	0-15			
Sphaerosyllis taylori Perkins, 1981	x		x		1.5-12			
Sphaerosyllis thomasi San Martin, 1984	x	x		x	5.5-50	x		
***Sphaerosyllis* sp. 1**		x			50	x		Undescribed species, reported as *Sphaerosyllis* sp. by San Martin (2003).
Streptospinigera templadoi (San Martin, 1984)	x				-			
Streptosyllis bidentata Southern, 1914		x			5	x		
Streptosyllis websteri Southern, 1914	x				-			
Syllides fulvus Marion & Bobretzky, 1875	x		x		5-15			
Syllides japonicus Imajima, 1966			x		-			

Syllis alosae San Martin, 1992			x		-		Q		The species was recorded once for the Italian coastline and considered as a non-indigenous species by Castelli et al. (2008). Since the material upon which this record was based is lost, and the specimens have not been described, Langeneck et al. (2020a) considered it as a questionable non-indigenous species.
Syllis amica Quatrefages, 1866	x	x		x	0-0.5	x			
Syllis armillaris (O. F. Müller, 1776)	x	x	x	x	1.5-198	x		x	Species complex (Musco & Giangrande, 2005), potentially including more than one species in the Mediterranean Sea. In particolar, *S. armillaris* s.s. is a Nordic species and might be absent from the Mediterranean Sea.
Syllis beneliahuae (Campoy, 1982)	x		x		1.5-5				
Syllis bouvieri Gravier, 1900			x		-				
Syllis columbretensis (Campoy, 1982)	x		x		1.5				
Syllis compacta Gravier, 1900		x	x		0-0.5				
Syllis corallicola Verrill, 1900	x	x	x		1.5-30				
Syllis cruzi Núñez & San Martín, 1991			x		-				
Syllis ferrani Alós & San Martín, 1987	x	x	x	x	0-52	x			
Syllis garciai (Campoy, 1982)	x	x	x		1.5-60	x			
Syllis gerundensis (Alós & Campoy, 1981)	x	x	x		5-30	x			
Syllis golfonovensis (Hartmann-Schröder, 1962)			x		15-25				
Syllis gracilis Grube, 1840	x	x	x	x	0-52	x		x	Species complex (Alvarez-Campos et al., 2017b), including at least four divergent lineages in the Mediterranean Sea, two of which might occur in syntopy (Langeneck et al., 2020b). Specimens from the Salento coastline are currently unknown from the molecular point of view.
Syllis hyalina Grube, 1863	x		x		1.5-25				

Syllis jorgei San Martín & López, 2000	x		x	x	1-5		According to San Martín & López (2000), the European individuals originally identified as *Syllis lutea* (Hartmann-Schröder, 1960) actually belong to *S. jorgei*. We accordingly referred all records of *S. lutea* along the Salento coastline to this species.
Syllis kabilica **Ben-Eliahu, 1977**				x	5.5-17		
Syllis katzmanni Arvanitidis, 2017			x		732		
Syllis krohnii Ehlers, 1864	x	x	x	x	0-5		
Syllis pontxioi San Martín & López, 2000	x	x		x	15-20	x	
Syllis profunda Cognetti, 1955				x	70	x	
Syllis prolifera Krohn, 1852	x	x	x	x	0-5	x	
Syllis pulvinata (Langerhans, 1881)	x		x		5-25		
Syllis rosea (Langerhans, 1879)	x	x	x	x	0-15		
Syllis torquata Marion & Bobretzky, 1875	x				1.5-15		

Syllis truncata cryptica Ben-Eliahu, 1977	x	x	x	x	0-90	x	Despite the evident differences in the descriptions, this species was put into synonymy with *Syllis gerlachi* (Hartmann-Schröder, 1960) by Licher (1999), and this synonymy was followed by San Martin (2003), leading to the widespread report of *S. gerlachi* in the Mediterranean Sea. Ba-Akdah et al. (2018) redescribed *S. gerlachi* based on type material, demonstrating that the synonymy is based on the redescription of a paratype, which clearly differs from the holotype, and is therefore erroneous. The examined specimens correspond well with *Syllis truncata cryptica* described by Ben-Eliahu (1977). This taxon is reported as *Syllis truncata-cryptica* by WoRMS (Ahyong et al., 2023), but this spelling is erroneous, as Ben-Eliahu (1977) explicitly stated that it is meant to be a subspecies of *Syllis truncata* Haswell, 1920. The morphological differences retrieved between the subspecies *cryptica* and the nominal subspecies would probably warrant raising it to a full species status, and San Martin et al. (2023) cited this species as *Syllis cryptica*, but the species should be properly redescribed before undertaking this action.
Syllis tyrrhena (Licher & Kuper, 1998)		x		x	8-30	x	
Syllis variegata Grube, 1860	x		x	x	1.5-80	x	
Syllis vittata Grube, 1840	x	x		x	1-2	x	
Syllis vivipara Krohn, 1869	x		x		1		
Syllis westheidei San Martin, 1984	x	x	x		1.5-15		
Synmerosyllis lamelligera (Saint-Joseph, 1887)		x	x	x	1.5-82	x	
Trypanosyllis aeolis Langerhans, 1879	x				15		

Trypanosyllis zebra (Grube, 1860)	x		x	x	1.5-61	x	x	Species complex, including at least three divergent lineages in the Mediterranean Sea (Alvarez-Campos et al., 2017a). Alvarez-Campos et al. (2017a) redescribed *Trypanosyllis krohnii* Claparède, 1864, which had been historically put into synonymy with *Syllis zebra* Grube, 1860. However, considering the occurrence of several Mediterranean lineages, and the poor preservation of the type material, they precautionarily refrained from confirming or denying the synonymy. As all records of this complex for the Salento coastline are under the name *Trypanosyllis zebra*, and this taxon is technically valid, we are here keeping them under this name, pending more detailed molecular investigations.
Xenosyllis scabra (Ehlers, 1864)	x		x		15			
Terebellidae Johnston, 1846								
Amaeana trilobata (M. Sars, 1863)	x				100			
Amphitrite cirrata O. F. Müller, 1776			x		-			
Amphitrite rubra (Risso, 1826)	x		x		2-14			
Amphitrite variabilis (Risso, 1826)		x			1-3			
Eupolymnia* cf. *meissnerae Lavesque, Daffe, Londoño-Mesa & Hutchings, 2021				x	8-80			
Eupolymnia nebulosa (Montagu, 1819)	x		?		12		x	This species was recently redescribed by Lavesque et al. (2021), who pointed out the occurrence of several close species in the European waters. *E. nebulosa* s.s. is probably absent from the Mediterranean Sea.

Eupolymnia nesidensis (Delle Chiaje, 1828)	x				5-63	Lavesque et al. (2021) stressed that the original description of this species is really short and does not include any actual diagnostic character; therefore, *E. nesidensis* should currently be regarded as a *nomen dubium*.
Lanice conchilega (Pallas, 1766)	x				-	
Lysilla loveni Malmgren, 1866	x				12	
Nicolea venustula (Montagu, 1819)	x	x	?		1-14	
Pista cristata (O. F. Müller, 1776)	x		?	x	2-17	
Pista cf. *labruneae* Lavesque, Daffe, Londoño-Mesa & Hutchings, 2021	x				-	This species was recently described for the Mediterranean Sea (Lavesque et al., 2021) and subsequently found off the coasts of Turkey (Çinar et al., 2022) and Italy (Langeneck et al., *submitted*). Mediterranean records of *Pista unibranchia* Day, 1963 (an allegedly non-indigenous species) should be most likely referred to this native species.
Pistella lornensis (Pearson, 1969)	x				12	Records of *P. lornensis* in the Mediterranean Sea turned out to represent misidentifications of endemic Mediterranean species (Mikac & Hutchings, 2017; Lavesque et al., 2021). The records for Taranto are probably due to the use of outdated literature, and the presence of this species along the Salento coastline is doubtful.
Pistella rovignensis Mikac & Hutchings, 2017		x		x	11.5-20	
Polycirrus aurantiacus Grube, 1860	x				2-6	
Streblosoma bairdi (Malmgren, 1866)				x	104	
Streblosoma hutchingsae Lezzi & Giangrande, 2018	x				3	
Streblosoma nogueirai Lezzi & Giangrande, 2018			x		3	

Streblosoma pseudocomatus Lezzi & Giangrande, 2018	x				3-12	C	Even though the type locality is in the Mediterranean Sea, the association of this species with port environments, and its distribution mostly encompassing the eastern Mediterranean Sea, strongly suggest that it is a non-indigenous species. Here we consider it as cryptogenic, in agreement with Langeneck et al. (2020a).
Terebella lapidaria Linnaeus, 1767	x	x	x	x	0-25		
Thelepus cincinnatus (Fabricius, 1780)	x				25		The species was recorded along the Salento coastline only for coralligenous outcrops off Porto Cesareo; as all specimens recently found turned out to belong to the recently described *T. parapari*, which is typical of this kind of environment in the Mediterranean Sea, this record is probably a misidentification of *T. parapari*.
Thelepus parapari Jirkov, 2018				x	50-70		
Thelepus triserialis (Grube, 1855)			x		-		
Tomopteridae Eschscholtz, 1865							
Enapteris euchaeta (Chun, 1888)			x		210		
Tomopteris (Johnstonella) apsteini Rosa, 1908			x		900		
Tomopteris (Johnstonella) helgolandica Greeff, 1879			x		600		
Tomopteris (Johnstonella) pacifica Izuka, 1914			x		210-1000		
Tomopteris (Tomopteris) ligulata Rosa, 1908			x		900-1000		
Tomopteris (Tomopteris) planktonis Apstein, 1900			x		900		
Trichobranchidae Malmgren, 1866							

Terebellides cf. *stroemii* M. Sars, 1835	x	x	-	x	This taxon has recently been re-evaluated as a hyperdiverse species complex (Nygren et al., 2018). Even though several species of the complex have been described afterwards (Lavesque et al., 2019; Parapar et al., 2020; Barroso et al., 2022b), its diversity is virtually unknown in the Mediterranean Sea.
Trichobranchus glacialis Malmgren, 1866	x		-		
Typhloscolecidae Uljanin, 1878					
Sagitella kowalewskii Wagner, 1872		x	600-1000		
Travisiopsis lanceolata Southern, 1910		x	210		

3.4 SELECTION OF POTENTIAL MODEL SPECIES

Based on the presence of morphological traits of interest for the project, the occurrence in shallow-water environments and, in most cases, the ability to thrive in stressful environments (intertidal environments, ports, or coastal ponds), we were able to identify 28 potential model species, belonging to 18 families and to 5 clades identified by the latest phylogenetic reconstructions (Weigert & Bleidorn, 2016).

Amphinomida	*Euphrosine foliosa* *Hermodice carunculata*
Echiura	*Bonellia viridis*
Errantia	*Ceratonereis costae* *Glycera alba* *Glycera rouxii* *Goniada emerita* *Goniada maculata* *Hediste diversicolor* *Lepidonotus clava* *Lepidonotus tenuisetosus* *Lumbrineris latreillii* *Marphysa sanguinea* *Naineris laevigata* *Naineris setosa* *Nephtys sinopensis* *Nereiphylla rubiginosa* *Platynereis dumerilii* *Pterocirrus macroceros* *Syllidia armata* *Syllis vittata*
Sedentaria	*Nicomache lumbricalis*
Sipuncula	*Aspidosiphon muelleri* *Onchnesoma steenstrupii* *Phascolosoma* cf. *agassizii* *Phascolosoma granulatum* *Phascolosoma stephensoni* *Sipunculus nudus*

Among these groups, Sipuncula and Echiura are non-segmented annelids that are able to dramatically change in shape to adapt to the surrounding environment, and their entire anatomy might represent an interesting model for next-generation robots (Fig. 10).

Conversely, all other annelids share the typical segmented polychaete structure, which is less flexible and adaptable than the one of Sipuncula and Echiura, but additional inspiration might come from the pharyngeal features of these organisms. In fact, the selected species show an eversible, muscular pharynx, often armed with hard jaw pieces (Fig. 11). A comparative study of the anatomy and the eversion mechanisms might shed light on the evolution of pharyngeal adaptations, but also give clues about how to implement hard elements within soft-bodied robots.

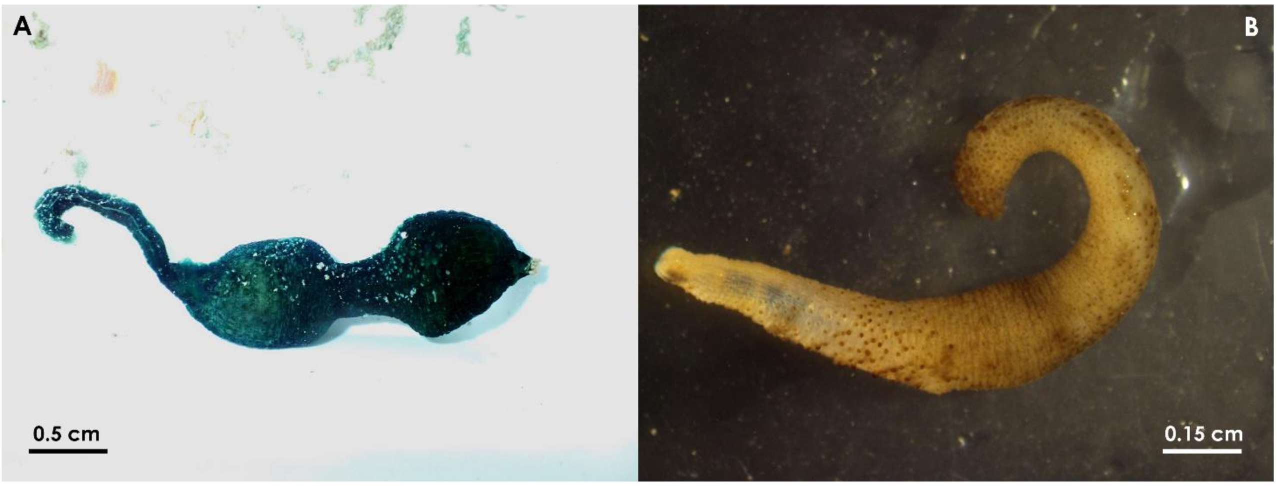

Figure 10. UNSEGMENTED ANNELID FROM THE SALENTO COASTLINE SELECTED AS POTENTIAL MODELS: *BONELLIA VIRIDIS* (A) AND *PHASCOLOSOMA STEPHENSONI* (B).

Some of the selected model species meet only two out of the three criteria; this is the case, for instance, of the two *Goniada* species or *Nephtys sinopensis*, which are widespread along the Salento Peninsula at relatively shallow depths, and are characterised by interesting morphological traits, but do not occur in stressful environments and might reveal themselves difficult to rear in aquarium conditions. Nonetheless, we chose to include these organisms, as they are the most widespread representatives of their family along the Salento coastline, and these families are characterised by unique pharyngeal structure traits among the marine annelids occurring in the area and might represent interesting models from this point of view.

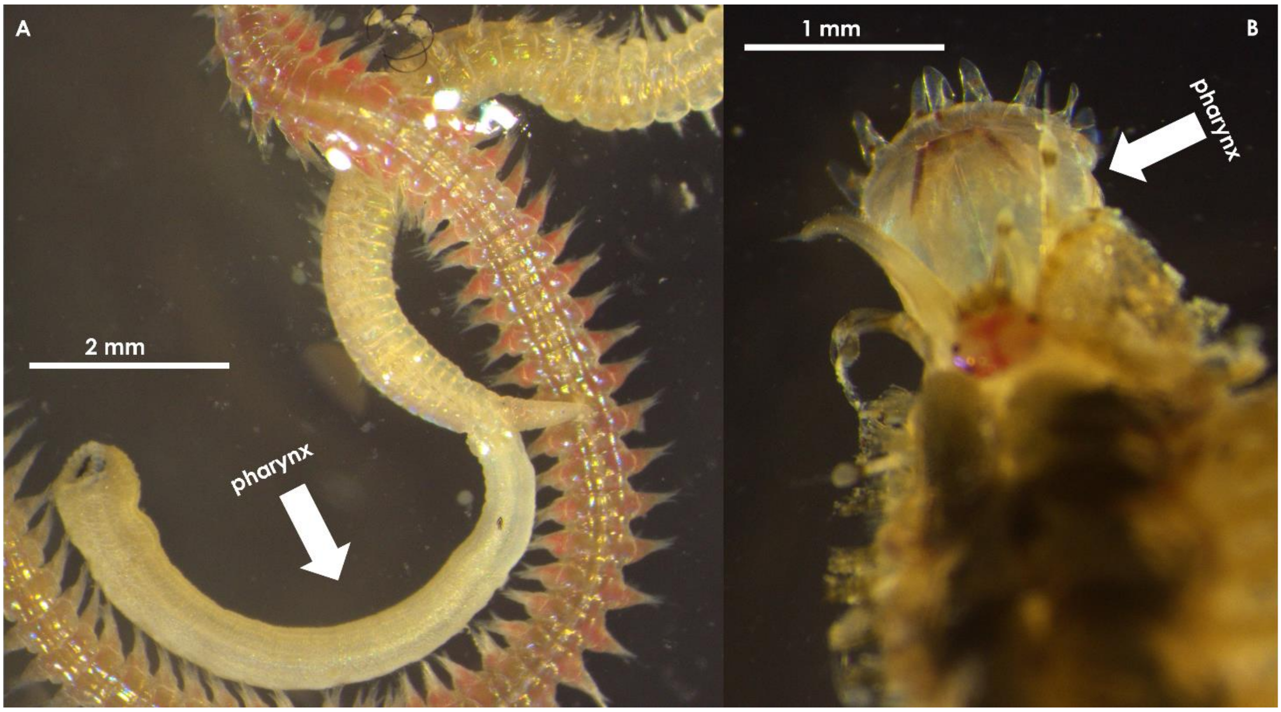

Figure 11. SEGMENTED ANNELIDS WITH EVERSIBLE PHARYNX SELECTED AS POTENTIAL MODELS: *GONIADA EMERITA* (A) AND *LEPIDONOTUS CLAVA* (B).

4 CONCLUSIONS

The current work of reconstruction of the diversity and distribution of marine annelids along the coasts of Salento highlighted the occurrence of 648 taxa. By comparing this value to the 951 species listed in the most recent checklist of marine annelids in Italian Seas (Anonymous, 2008; Castelli et al., 2008; Minelli, 2008; Pancucci-Papadopoulou, 2008; Rota, 2008), this value would correspond to 68% of all marine annelid species found in Italian waters. However, 96 species listed in this checklist were not reported (even with a synonymous name) in the latest checklist, and another 23 taxa listed in the current checklist represent provisional species, which are currently under study, accounting for an additional 12% of the annelid species reported along the Italian coasts. Taking into account only the overlap between the two checklists, approximately 55% of the previously known annelid diversity reported for the Italian waters was recorded along the coast of Salento, confirming the importance of this area as biodiversity hotspot (Furfaro et al., 2020; Micaroni et al., 2022).

Despite the relatively short time dedicated to the collection of new samples (approximately 10 months), these activities significantly contributed to the evaluation of the diversity of marine annelids along the coasts of Salento, allowing the identification of >130 additional taxa, accounting for 21% of the total annelid diversity found in the study area. This result highlights the importance of a continuative sampling effort, especially for diverse and complex animal groups such as annelids. This is evident in the cases of two non-indigenous species (*Lepidonotus tenuisetosus* and *Paucibranchia* cf. *adenensis*) which are reported for the first time in Italian waters. In addition, the genus *Axiokebuita* is reported for the first time in the Mediterranean Sea (Fig. 12), together with *Arabella* cf. *longocirrata*, *Eupolymnia* cf. *meissnerae* and *Lumbrineris futilis*, originally described for the Eastern Atlantic Ocean and most likely representing native yet overlooked species in the Mediterranean.

Figure 12. ***AXIOKEBUITA* SP., INDIVIDUAL SAMPLED OFF SANTA CATERINA, REPRESENTING THE FIRST OCCURRENCE OF THE GENUS IN THE MEDITERRANEAN SEA.**

The knowledge about marine annelids occurring along the Salento coastline is not evenly distributed among different groups. In particular, the diversity of Syllidae, Sabellidae and Serpulidae are rather well-known; these families are known to be rather species-rich, and this partially explains their comparatively high contribution to the diversity of annelids along the Salento Peninsula: the cumulated taxa assigned to these families account for 34% of the total annelid diversity along the Salento coastline. However, the number of systematic and ecological studies focusing on these families (e.g., Musco, 2012; Giangrande et al., 2021; Musco et al., 2021) also accounts for their better representation, confirming the occurrence and relevance of an "author effect" in local knowledge of marine annelids (Musco & Giangrande, 2005b). Conversely, several groups are only partially studied, the majority of data refer to old references and are often not georeferenced. It is probable that more detailed studies might reveal surprisingly high diversities within these groups. This is particularly true for some neglected groups, as in case of Oligochaeta (Naididae and Enchytraeidae). This group is actually widespread in shallow-water Mediterranean environments, but the absence of updated identification keys and taxonomic expertise typically leads to identification to the family or higher taxonomic levels. As a consequence, the diversity of this group in marine environments of the Mediterranean Sea is widely underestimated (Rota, 2008). This is particularly true for the Salento Peninsula, for which only two species of the family Naididae and two genera of the family Enchytraeidae are known (Bonomi & Erséus, 1984; Erséus, 1987; Sjölin & Erséus, 2001). Notably, specimens belonging to the family Enchytraeidae were identified as potential new species by Bonomi & Erséus (1984), but unlike the Naididae of the Italian coastline, they were never the subject of taxonomic revisions. Unlike other annelid groups, the diversity of Oligochaeta along the Italian coastline has not been the subject of more detailed studies with respect to the 1980s. The same issue of limited expertise and lacking taxonomic revisions affects the study of almost all non-polychaete marine annelids (Echiura, Hirudinea, Sipuncula and Siboglinidae, the latter not recorded in the study area) as well as several polychaete families (e.g., Ampharetidae, Capitellidae, Dorvilleidae, Maldanidae, Scalibregmatidae). In all these cases, the names used for Mediterranean specimens did not change from the 1970s, and they often refer to species with type locality outside of the Mediterranean Sea. Critical revisions referred to other areas suggest that these names are misapplied, and the diversity of these taxa is largely underestimated, but at present the lack of taxonomic expertise hinders a progress in the study of these groups.

The aim of the first year of the MAPWORMS project was to expand the knowledge about marine annelids in several parts of the Salento Peninsula that were historically poorly known and on some scarcely studied environments, such as coralligenous outcrops and mesophotic bioconstructions which have been the subject of limited investigations (Corriero et al., 2004; Gravina et al., 2021), while submarine freshwater springs ("citri") that occur along the western coast of the Salento Peninsula, have never been properly explored. In addition, the ~80 km long coastline between Brindisi and Otranto was thoroughly explored at depths between the surface and around 100 m.

Marine annelids are generally affected by the occurrence of a high cryptic and pseudo-cryptic diversity within formally recognised species (Nygren, 2014). This issue is in fact more relevant in this group due to historical reasons. The diversity of marine annelids, and in particular polychaetes, has been revised at the beginning of the XX Century, and the majority of the species described in the XIX Century have been put into synonym with relatively few taxa. As a consequence, unlike the majority of marine invertebrates, annelids have been historically considered as a group including mostly cosmopolitan species, or species with extremely wide distributions (Ekman, 1953). This paradigm was already put into discussion in the 1980s (Fauchald, 1984), but the recent increase in the use of molecular data contributed to the re-evaluation of the diversity of marine annelids, unveiling how many nominal species included several divergent molecular lineages and thus represented species complexes (Nygren, 2014). In some instances, records of the complexes in European waters might refer to an array of around 10-20 divergent lineages (Nygren et al., 2018; Teixeira et al., 2022a; 2022b), sometimes occurring in the same environment (Calosi et al., 2013; Langeneck et al., 2020b), suggesting that the current taxonomic view is underestimating the actual number of species of approximately one order of magnitude. Out of the 648 taxa reported for the Salento Peninsula, 36 are already known in literature as species complexes. However, molecular data are available for only two closely related taxa, i.e. *Platynereis dumerilii* and *Platynereis* cf. *massiliensis* (Wäge et al., 2017; Teixeira et al., 2022b), and even for these species the available data are scanty and refer to only a few individuals from a single population. Moreover, it is not unlikely that several marine annelid taxa that have not been studied from the molecular point of view will turn out to be species complexes as well.

Molecular data are extremely scanty for annelids occurring along the Salento Peninsula. Even in the few papers including molecular data, specimens from Salento account for a lesser part of the analysed material, and the diversity of comparatively well-known groups is only partially explored in the study area. This is true for known species complexes (e.g., the *Eumida sanguinea* and *Hediste diversicolor* species groups) but also for groups that have recently been the subject of taxonomic revisions in the European waters, but are still scantily known in the Mediterranean Sea (e.g., the Terebellidae s.l.). Non-indigenous annelids represent one of the most interesting groups from the molecular point of view. Cytochrome oxidase I gene (COI) barcodes are currently not available for 22 out of the 41 annelid taxa reported as non-indigenous along the Salento coastline, and this kind of information is also missing for several species considered indigenous in the study area, but non-indigenous elsewhere (Lavrador et al., 2023). Metabarcoding of environmental DNA (eDNA) is on the rise as a technique of environmental monitoring and reconstruction of organisms diversity, and might be effectively used to track the distribution and spread of non-indigenous species. However, reliable reference libraries are of paramount importance for the correct interpretation of the results of metabarcoding projects (Stoeckle et al., 2020; Jerde et al., 2021). At least currently, the study of diversity through eDNA metabarcoding is hindered by several issues (Willassen et al., 2022), but one of them is clearly the absence of sufficiently complete reference libraries (Lobo et al., 2016; Lavrador et al., 2023). The barcoding of marine annelids of the Salento coastline, which is one of the outcomes expected for the second year of the MAPWORMS project, will contribute to increasing the soundness and usefulness of marine invertebrates' barcode libraries.

Finally, the revision of the diversity of marine annelids along the coasts of Salento allowed the identification of 28 species that are widespread along the Salento coastline and might be employed as potential models for soft-bodied, shape-morphing next generation robots. While, technically speaking, a significant part of the censuses annelid species might show interesting traits, the selection was also based on the abundance of records and the occurrence in shallow-water environments, which are relatively easy to sample. In addition, we prioritised brackish-water species and species occurring in the intertidal area, as we expect that these species would be easier to maintain in laboratory conditions. Brackish-water species are often characterised by direct development, which would allow to close their life cycle in laboratory and allow to build a self-sustaining captive population. Seven species (six Sipuncula and one Echiura) show interesting features of introvert eversion and shape morphing of the whole body, while the remaining ones have been selected based on the presence of an eversible pharynx, either armed or unarmed, that might further contribute to the development of soft robots for biomedical applications.

5 REFERENCES

Accogli R., Belmonte G., Bernardini M., Ruggiero L. (1993) La Penisola Salentina. In: Belmonte G., Bernardini M., Brizio S. (eds.), *Ambienti e itinerari naturalistici della provincia di Lecce*, Conte Editore, Lecce, Italy, pp. 9-22.

Ahyong S., Boyko C.B., Bailly N., Bernot J., Bieler R., Brandão S.N., Daly M., De Grave S., Gofas S., Hernández F., Hughes L., Neubauer T.A., Paulay G., Boydens B., Decock W., Dekeyzer S., Vandepitte L., Vanhoorne B., Adlard R., Agatha S., Ahn K.J., Akkari N., Alvarez B., Amler M.R.W., Amorim V., Anderberg A., Anderson G., Andrés-Sánchez S., Ang Y., Antić D., Antonietto L.S.., Arango C., Artois T., Atkinson S., Auffenberg K., Baldwin B.G., Bank R., Barber A., Barbosa J.P., Baron-Szabo R.C., Bartsch I., Bellan-Santini D., Bergh N., Berta A., Bezerra T.N., Blanco S., Blasco-Costa I., Blazewicz M., Błędzki L.A., Bock P., Bonifacino M., Böttger-Schnack R., Bouchet P., Boury-Esnault N., Bouzan R., Boxshall G., Bray R., Bruce N.L., Bruneau A., Budaeva N., Bueno-Villegas J., Cairns S., Calvo Casas J., Camilo de Oliveira J.P., Carballo J.L., Cárdenas P., Carstens E., Chan B.K., Chan T.Y., Cheng L., Choong H., Christenhusz M., Churchill M., Collins A.G., Collins G.E., Collins K., Consorti L., Copilaş-Ciocianu D., Corbari L., Cordeiro R., Cornils A., Costa Corgosinho P.H., Coste M., Costello M.J., Crandall K.A., Cremonte F., Cribb T., Cutmore S., Dahdouh-Guebas F., Daneliya M., Dauvin J.C., Davie P., De Broyer C., de Lima Ferreira P., de Mazancourt V., de Voogd N.J., Decker P., Defaye D., Dekker H., d'Hondt J.L., Di Capua I., Dippenaar S., Dohrmann M., Dolan J., Domning D., Downey R., Dreyer N., Eisendle U., Eitel M., Enghoff H., Epler J., Evenhuis N.L., Ewers-Saucedo C., Faber M., Figueroa D., Fišer C., Fordyce E., Foster W., Frank J.H., Fransen C., Freire S., Fujimoto S., Furuya H., Galbany-Casals M., Gale A., Galea H., Gao T., Garcia-Jacas N., Garic R., Garnett S., Gasca R., Gaviria-Melo S., Gerken S., Gibson D., Gibson R., Gil J., Gittenberger A., Glasby C., Glenner H., Glover A., Gómez-Noguera S.E., Gondim A.I., Gonzalez B., González-Solís D., Goodwin C., Gostel M., Grabowski M., Gravili C., Grossi M., Guerra-García J.M.., Guerrero J.M., Guidetti R., Guiry M.D., Gutierrez D., Hadfield K.A., Hajdu E., Halanych K., Hallermann J., Hayward B.W., Hegna T.A., Heiden G., Hendrycks E., Herbert D., Herrera Bachiller A., Ho J.s., Hodda M., Høeg J., Hoeksema B., Holovachov O., Hooper J.N., Horton T., Houart R., Hyžný M., Iniesta L.F.M., Iseto T., Ivanenko V., Iwataki M., Janssen R., Jaume D., Jazdzewski K., Jersabek C.D., Jóźwiak P., Kabat A., Kantor Y., Karanovic I., Karapunar B., Karthick B., Kathirithamby J., Katinas L., Kim Y.H., King R., Kirk P.M., Klautau M., Kociolek J.P., Köhler F., Kolb J., Konowalik K., Kotov A., Kovács Z., Kremenetskaia A., Kristensen R.M., Kroh A., Kulikovskiy M., Kullander S., Kupriyanova E., Lamaro A., Lambert G., Lazarus D., Le Coze F., Le Roux M., LeCroy S., Leduc D., Lefkowitz E.J., Lemaitre R., Lichter-Marck I.H., Lim S.C., Lindsay D., Liu Y., Loeuille B., Lörz A.N., Ludwig T., Lundholm N., Macphe-rson E., Madin L., Mah C., Mamos T., Manconi R., Mapstone G., Marek P.E., Marshall B., Marshall D.J., Martin P., McFadden C., McInnes S.J., McKenzie R., Means J., Mees J., Mejía-Madrid H.H., Meland K., Merrin K.L., Messing C., Miller J., Mills C., Moestrup Ø., Mokievsky V., Molodtsova T., Monniot F., Mooi R., Morandini A.C., Moreira da Rocha R., Morrow C., Mortelmans J., Mortimer J., Muñoz Gallego A.R., Musco L., Nery D.G., Nesom G., Neubert E., Neuhaus B., Ng P., Nguyen A.D., Nielsen C., Nielsen S., Nishikawa T., Norenburg J., O'Hara T., Opresko D., Osawa M., Osigus H.J., Ota Y., Páll-Gergely B., Panero J.L., Pasini E., Patterson D., Pedram M., Pelser P., Peña Santiago R., Pereira J.d.S.., Perez-Losada M., Petrescu I., Pfingstl T., Piasecki W., Pica D., Picton B., Pignatti J., Pilger J.F., Pinheiro U., Pisera A.B., Polhemus D., Poore G.C., Potapova M., Praxedes R.A., Půža V., Read G., Reich M., Reimer J.D., Reip H., Resende

Bueno V., Reuscher M., Reynolds J.W., Richling I., Rimet F., Ríos P., Rius M., Rodríguez E., Rogers D.C., Roque N., Rosenberg G., Rützler K., Saavedra M., Sabbe K., Sabroux R., Saiz-Salinas J., Sala S., Santagata S., Santos S., Santos S.G., Sar E., Saraiva De Oliveira J., Satoh A., Saucède T., Schärer L., Schierwater B., Schilling E., Schmidt-Lebuhn A., Schmidt-Rhaesa A., Schneider S., Schönberg C., Schuchert P., Schweitzer C., Senna A.R., Sennikov A., Serejo C., Shaik S., Shamsi S., Sharma J., Shear W.A., Shenkar N., Short M., Sicinski J., Sierwald P., Simmons E., Sinniger F., Sinou C., Sivell D., Sket B., Smit H., Smit N., Smol N., Sørensen M.V., Souza-Filho J.F.., Spelda J., Sterrer W., Stoev P., Stöhr S., Suárez-Morales E., Susanna A., Suttle C., Swalla B.J., Taiti S., Tanaka M., Tandberg A.H., Tang D., Tasker M., Taylor J., Taylor J., Taylor K., Tchesunov A., Temereva E., ten Hove H., ter Poorten J.J., Thomas J.D., Thuesen E.V., Thurston M., Thuy B., Timi J.T., Todaro A., Todd J., Turon X., Uetz P., Urbatsch L., Uribe-Palomino J., Urtubey E., Utevsky S., Vacelet J., Vachard D., Vader W., Väinölä R., Van de Vijver B., van der Meij S.E., van Haaren T., van Soest R.W., Vanreusel A., Venekey V., Verhoeff T., Vinarski M., Vonk R., Vos C., Vouilloud A.A., Walker-Smith G., Walter T.C., Watling L., Wayland M., Wesener T., Wetzel C.E., Whipps C., White K., Wieneke U., Williams D.M., Williams G., Wilson R., Witkowski J., Wyatt N., Wylezich C., Xavier J., Xu K., Zanol J., Zeidler W., Zhao Z., Zullini A. (2023)*World Register of Marine Species*. Available from https://www.marinespecies.org at VLIZ. Accessed 2023-03-22

Álvarez P., San Martín G. (2009) A new species of *Sphaerosyllis* (Annelida: Polychaeta: Syllidae) from Cuba, with a list of syllids from the Guanahacabibe Biosphere Reserve (Cuba). *Journal of the Marine Biological Association of the U.K.* 89: 1427-1435.

Álvarez-Campos P., San Martin G., Aguado M.T. (2012) The genus *Branchiosyllis* Ehlers, 1887 from Philippines Islands, with the description of two new species. *Zootaxa* 3542: 49-68.

Álvarez-Campos P., Giribet G., Riesgo A. (2017a) The *Syllis gracilis* species complex: A molecular approach to a difficult taxonomic problem (Annelida, Syllidae). *Molecular Phylogenetics and Evolution* 109: 138-150.

Álvarez-Campos P., Giribet G., San Martin G., Rouse G.W., Riesgo A. (2017b) Straightening the striped chaos: systematics and evolution of *Trypanosyllis* and the case of its pseudocryptic type species *Trypanosyllis krohnii* (Annelida, Syllidae). *Zoological Journal of the Linnean Society* 179: 492-540.

Amoureux L. (1970) Annélides Polychètes du Golfe de Tarente. Resultats de nouvelles croisières de l'Albatros (1968-1969). *Annali del Museo Civico di Storia Naturale Giacomo Doria* 78: 1-20.

Anonymous (2008) Pogonophora – Echiura. *In Relini G. (ed.), Checklist della flora e della fauna dei mari italiani (parte I)*. *Biologia Marina Mediterranea* 15 (suppl. 1): 374-375.

Ba-Akdah M.A., Satheesh S., Al-Sofyani A.M.A., Lucas Y., Alvarez-Campos P., San Martin G. (2018) Taxonomy of some species of the genus *Syllis* (Annelida: Syllidae: Syllinae) from the Red Sea found among the first colonizers of an artificial substrate. *Marine Biology Research* 14: 790-805.

Barnich R., Fiege D. (2003) The Aphroditoidea (Annelida:Polychaeta) of the Mediterranean Sea. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft* 559: 1-172.

Barroso M., Moreira J., Parapar J. (2022a) Long forgotten: *Eunice woodwardi* Baird, 1869 (Annelida, Eunicidae) revisited, with an insight on internal anatomy. *PeerJ* 10: e13126.

Barroso M., Moreira J., Capa M., Nygren A., Parapar J. (2022b) A further step towards the characterisation of *Terebellides* (Annelida, Trichobranchidae) diversity in the Northeast Atlantic, with the description of a new species. *ZooKeys* 1132: 85-126.

Bedulli D., Bianchi C.N., Morri C., Zurlini G. (1986) Caratterizzazione biocenotica e strutturale del macrobenthos delle coste pugliesi. In: Viel M., Zurlini G. (eds.), *Indagine ambientale del sistema marino costiero della regione Puglia*. Enea publ., Roma, Italy, pp. 227-255.

Beli E., Aglieri G., Strano F., Maggioni D., Telford M.J., Piraino S., Cameron C.B. (2018) The zoogeography of extant rhabdopleurid hemichordates (Pterobranchia: Graptolithina), with a new species from the Mediterranean Sea. *Invertebrate Systematics* 32: 100-110.

Belmonte G. (1993) L'ambiente marino. In: Belmonte G., Bernardini M., Brizio S. (eds.), *Ambienti e itinerari naturalistici della provincia di Lecce*. Conte Editore, Lecce, Italy, pp. 41-56.

Ben-Eliahu M.N. (1977) Polychaete cryptofauna from rims of similar intertidal vermetid reefs on the Mediterranean coast of Israel and in the Gulf of Elat: Syllinae and Eusyllinae (Polychaeta Errantia: Syllidae). *Israel Journal of Zoology* 26: 1-58.

Bianchi C.N. (1981) *Policheti Serpuloidei*. Consiglio Nazionale delle Ricerche, Roma, Italy, 187 pp.

Bianchi C.N., Bedulli D., Morri C., Occhipinti Ambrogi A. (1989) L'herbier de posidonies: ecosystéme ou carrefour ethologique? In: Boudouresque C.F., Meinesz A, Fresi E., Gravez V. (Eds.), International Workshop on Posidonia Beds. GIS Posidonia publ., France, 2: 257-272.

Bick A., Otte K., Meißner K. (2010) A contribution to the taxonomy of *Spio* (Spionidae, Polychaeta, Annelida) occurring in the North and Baltic Seas, with a key to species recorded in this area. *Marine Biodiversity* 40: 161-180.

Blake J.A. (1991) Revision of some genera and species of Cirratulidae (Polychaeta) from the western North Atlantic. *Ophelia* 5S: 17-30.

Blake J.A. (2016) *Kirkegaardia* (Polychaeta, Cirratulidae), new name for *Monticellina* Laubier, preoccupied in the Rhabdocoela, together with new records and descriptions of eight previously known and sixteen new species from the Atlantic, Pacific, and Southern Oceans. *Zootaxa* 4166: 1-93.

Blake J.A. (2017) Polychaeta Orbiniidae from Antarctica, the Southern Ocean, the Abyssal Pacific Ocean, and off South America. *Zootaxa* 4218: 1-145.

Blake J.A., Grassle J.P., Eckelbarger K.J. (2009) *Capitella teleta*, a new species designation for the opportunistic and experimental *Capitella* sp. I, with a review of the literature for confirmed records. *Zoosymposia* 2: 25-53.

Bleidorn C., Kruse I., Albrecht S., Bartolomaeus T. (2006) Mitochondrial sequence data expose the putative cosmopolitan polychaete *Scoloplos armiger* (Annelida, Orbiniidae) as a species complex. *BMC Evolutionary Biology* 6: 47.

Böggemann M. (2002) Revision of the Glyceridae Grube, 1850 (Annelida: Polychaeta). *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft* 555: 1-249.

Boidin-Wichlacz C., Jollivet D., Papot C., Roisin L., Massol F., Tasiemski A. (2021) Genetic diversification and life-cycle of the polychaete *Capitella* spp. from the English Channel: evidence for sympatric cryptic species and alternative reproductive strategies. *Marine Biology* 168: 176.

Bonomi G., Erséus C. (1984) A taxonomic and faunistic survey of the marine Tubificidae and Enchytraeidae (Oligochaeta) of Italy. Introduction and preliminary results. *Hydrobiologia* 115: 207-210.

Borisova P.B., Schepetov D.M., Budaeva N.E. (2018) *Aponuphis* Kucheruk, 1978 (Annelida: Onuphidae) from western African waters. *Invertebrate Zoology* 15: 19-41.

Calderón A.A., Ugalde J.C., Zagal J.C., Pérez-Arancibia N. (2016) Design, fabrication and control of a multi-material-multi-actuator soft robot inspired by burrowing worms. *2016 IEEE International Conference on Robotics and Biomimetics (ROBIO),* Qingdao, China, pp. 31-38.

Calosi P., Rastrick S.P.S., Lombardi C., de Guzman H.J., Davidson L., Jahnke M., Giangrande A., Hardege J.D., Spicer J.I., Gambi M.C. (2013) Adaptation and acclimatization to ocean acidification in marine ectotherms: an in situ transplant experiment with polychaetes at a shallow CO_2 vent system. *Philosophical Transactions of the Royal Society in London, Series B, Biological Sciences* 368: 20120444.

Castelli A., Bianchi C.N., Cantone G., Çinar M.E., Gambi M.C., Giangande A., Iraci Sareri D., Lanera P., Licciano M., Musco L., Sanfilippo R., Simonini R. (2008) Annelida Polychaeta. *In Relini G. (ed.), Checklist della flora e della fauna dei mari italiani (parte I)*. *Biologia Marina Mediterranea* 15 (suppl. 1): 323-373.

Causio S., Giangrande E., Belmonte G. (2015) Identification of Serpulidae (Polychaeta) responsible of stalactite cores in Italian submarine caves. *50th EMBS, Helgoland 21-25 September 2015, Abstract Book:* 44.

Chaibi M., Azzouna A., Martin D. (2023) First record of *Lepidonotus tenuisetosus* (Annelida: Polynoidae) from Tunisia with distributional notes. *Mediterranean Marine Science* 24: 7-18.

Chefaoui R.M., Duarte C.M., Serrao E.A. (2017) Palaeoclimatic conditions in the Mediterranean explain genetic diversity of *Posidonia oceanica* seagrass meadows. *Scientific Reports* 7: 2732.

Çinar M.E., Dağli E. (2021) Bioeroding (boring) polychaete species (Annelida: Polychaeta) from the Aegean Sea (eastern Mediterranean). *Journal of the Marine Biological Association of the U.K.* 101: 309-318.

Çinar M.E., Dağli E., Erdoğan-Dereli D. (2022) The diversity of polychaetes (Annelida: Polychaeta) in a long-term pollution monitoring study from the Levantine coast of Turkey (Eastern Mediterranean), with the descriptions of four species new to science and two species new to the Mediterranean fauna. *Journal of Natural History* 56: 1383-1426.

Cinelli F., Cognetti G., Grasso M., Mongelli S., Orlando E., Pagliai A.M. (Eds.) (1988) *Studio ecologico dell'area marina di Porto Cesareo*. Congedo Editore, Galatina, 138 pp.

Corriero G., Gherardi M., Giangrande A., Longo C., Mercurio M., Musco L., Nonnis Marzano C. (2004) Inventory and distribution of hard bottom fauna from the marine protected area of Porto Cesareo (Ionian Sea): Porifera and Polychaeta. *Italian Journal of Zoology* 71: 237-245.

Dağli E., Çinar M.E. (2011) Species of the subgenus *Minuspio* (Polychaeta: Spionidae: *Prionospio*) from the southern coast of Turkey (Levantine Sea, eastern Mediterranean), with the description of two new species. *Zootaxa* 3043: 35-53.

Eklöf J., Nygren A., Pleijel F. (2010) Cryptic species of *Notophyllum* (Polychaeta: Phyllodocidae) in Scandinavian waters. *Organisms Diversity & Evolution* 10: 193-204.

Ekman S. (1953) *Zoogeography of the Sea*. Sidgwick & Jackson, London, the U.K., 417 pp.

Elgetany A.H., El-Ghobashy A.E., Ghoneim A.M., Struck T.H. (2018) Description of a new species of the genus *Marphysa* (Eunicidae), *Marphysa aegypti* sp. n., based on molecular and morphological evidence. *Invertebrate Zoology* 15: 71-84.

Erséus C. (1987) Marine Limnodriloidinae (Oligochaeta, Tubificidae) from Italy, with description of two new species. *Bollettino di Zoologia* 54: 159-164.

ESRI (2011) ArcGIS Desktop, CA: Environmental Systems Research Institute.

Fauchald K. (1984) Polychaete distribution patterns, or: can animals with Palaeozoic cousins show large-scale geographical patterns? *In: Hutchings P. (ed.), Proceedings of the First International Polychaete Conference*. The Linnean Society of New South Wales, Sydney, Australia, pp. 1-6.

Faulwetter S., Chatzigeorgiou G., Galil B.S., Nicolaidou A., Arvanitidis C. (2011) *Sphaerosyllis levantina* sp. n. (Annelida) from the eastern Mediterranean, with notes on character variation in *Sphaerosyllis hystrix* Claparède, 1863. *Zookeys* 150: 327-345.

Fauvel P. (1923) *Faune de France 5. Polychètes Errantes.* Ed. Paul Lechevalier, Paris, France, 488 pp.

Fauvel P. (1927) *Faune de France 16. Polychètes Sédentaires*. Ed. Paul Lechevalier, Paris, France, 494 pp.

Filogna S., Iacovacci V., Vecchi F., Musco L., Menciassi A. (2021) Protrusion mechanism study in sipunculid worms as model for developing bio-inspired linear actuators. *Bioinspiration & Biomimetics* 16: 026008.

Filogna S., Paternò L., Vecchi F., Musco L., Iacovacci V., Menciassi A. (2022) A bioinspired fluid-filled soft linear actuator. *Soft Robotics* doi: 10-1089/soro.2021.0091

Fitzhugh K. (2002) Fan worm polychaetes (Sabellidae: Sabellinae) collected during the Thai-Danish BIOSHELF Project. *Phuket Marine Biological Center Special Publication* 24: 353-424.

Furfaro G., Vitale F., Licchelli C., Mariottini P. (2020) Two seas for one great diversity: Checklist of the marine Heterobranchia (Mollusca: Gastropoda) from the Salento Peninsula (South-East Italy). *Diversity* 12: 171.

Gambi M.C., Giangrande A. (1988) Record of the genus *Progoniada* (Polychaeta: Goniadidae) in the Mediterranean Sea. *Atti della Società Toscana di Scienze Naturali, Memorie, Serie B* 95: 147-154.

GEBCO Compilation Group (2022) GEBCO_2022 Grid doi:10.5285/e0f0bb80-ab44-2739-e053-6c86abc0289c

Giangrande A. (1989) Censimento dei Policheti dei mari italiani: Sabellidae Malmgren, 1867. *Atti della Società Toscana di Scienze Naturali, Memorie, Serie B* 96: 153-189.

Giangrande A., Montanaro P., Castelli A. (1999) On some *Amphicorina* (Polychaeta, Sabellidae) species from the Mediterranean coast, with the description of *A. grahamensis*. *Italian Journal of Zoology* 66: 195-203.

Giangrande A., Caruso L.P.G., Mikac B., Licciano M. (2015) The genus *Megalomma* (Annelida: Sabellidae) in the Mediterraenan [*sic*] Sea, with description of two new species from Italian and Croatian coasts. *Italian Journal of Zoology* 82: 521-534.

Giangrande A., Putignano M., Licciano M., Gambi M.C. (2021) The Pandora's box: Morphological diversity within the genus *Amphiglena* Claparède, 1864 (Sabellidae, Annelida) in the Mediterranean Sea, with description of nine new species. *Zootaxa* 4949: 201-239.

Grassle J.P., Grassle J.F. (1976) Sibling species in the marine pollution indicator *Capitella* (Polychaeta). *Science* 192: 567-569.

Gravina M.F., Pierri C., Mercurio M., Nonnis Marzano C., Giangrande A. (2021) Polychaete diversity related to different mesophotic bioconstructions along the southeastern Italian coast. *Diversity* 13: 239.

Grosse M., Bakken T., Nygren A., Kongsrud J.A., Capa M. (2020) Species delimitation analyses of NE Atlantic *Chaetozone* (Annelida, Cirratulidae) reveals hidden diversity among a common and abundant marine annelid. *Molecular Phylogenetics and Evolution* 149: 106852.

Grosse M., Capa M., Bakken T. (2021a) Describing the hidden species diversity of *Chaetozone* (Annelida, Cirratulidae) in the Norwegian Sea using morphological and molecular diagnostics. *Zookeys* 1039: 139-176.

Grosse M., Pérez R., Juan-Amengual M., Pons J., Capa M. (2021b) The elephant in the room: first record of invasive gregarious species of serpulids (Calcareous tube annelids) in Majorca (western Mediterranean). *Scientia Marina* 85: 15-28.

Guido A., Rosso A., Sanfilippo R., Miriello D., Belmonte G. (2022) Skeletal *vs* microbialite geobiological role in bioconstructions of confined marine environments. *Palaeogeography, Palaeoclimatology, Palaeoecology* 593: 110920.

Hartmann-Schröder G. (1979) Die Polychaeten der 'Atlantischen Kuppenfahrt' von F.S. 'Meteor' (Fahrt 9 c., 1967). 1. Proben aus Schleppgeräten. *Meteor Foschung-Ergebnisse* 31: 63-90.

Iannotta M.A., Gambi M.C., Patti F.P. (2009) Molecular evidence of intraspecific variability in *Lysidice ninetta* (Polychaeta: Eunicidae) in the Mediterranean Sea. *Aquatic Biology* 6: 121-132.

Jerde C.L., Mahon A.R., Campbell T., McElroy M.E., Pin K., Childress J.N., Armstrong M.N., Zehnpfennig J.R., Kelson S.J., Koning a.a., Ngor P.B., Nuon V., So N., Chandra S., Hogan Z.S. (2021) Are genetic reference libraries sufficient for environmental DNA of Mekong River Basin fish? *Water* 13: 1767.

Katsiaras N., Simboura N., Koutsoubas D. (2014) The rare subgroup C1 of *Marphysa* (Polychaeta, Eunicidae): re-description of species and first records in the Mediterranean Sea. *Zootaxa* 3873: 201-217.

Kim S., Laschi C., Trimmer B. (2013) Soft robotics: a bioinspired evolution in robotics. *Trends in Biotechnology* 31: 287-294.

Koh B.S., Bhaud M. (2001) Description of *Owenia gomsoni* n. sp. (Owniidae, Annelida Polychaeta) from the Yellow Sea and evidence that *Owenia fusiformis* is not a cosmopolitan species. *Vie et Milieu/Life & Environment* 51: 77-86.

Kurt-Şahin G., Çinar M.E. (2009) Eunicidae (Polychaeta) species in and around Iskenderun Bay (Levantine Sea, Eastern Mediterranean) with a new alien species for the Mediterranean Sea and a re-description of *Lysidice collaris*. *Turkish Journal of Zoology* 33: 331-347.

Langeneck J., Barbieri M., Maltagliati F., Castelli A. (2019) Molecular phylogeny of Paraonidae (Annelida). *Molecular Phylogenetics and Evolution* 136: 1-13.

Langeneck J., Englezou C., Di Maggio M., Castelli A., Maltagliati F. (2021) Phylogeography of *Aphanius fasciatus* (Osteichthyes: Aphaniidae) in the Mediterranean Sea, with a focus on its conservation in Cyprus. *Hydrobiologia* 848: 4093-4114.

Langeneck J., Fourreau C.J.L., Rousou M., Barbieri M., Maltagliati F., Musco L., Castelli A. (2022b) Environmental features drive lineage diversification in the *Aricidea assimilis* species complex (Anellida, Paraonidae) in the Mediterranean Sea. *The European Zoological Journal* 89: 1246-1258.

Langeneck J., Mazziotti C., Mikac B., Scirocco T., Castelli A. (2018) *Aricidea fragilis* (Annelida, Paraonidae) in the Mediterranean Sea: overlooked native or alien species? *The European Zoological Journal* 85: 268-273.

Langeneck J., Lezzi M., Del Pasqua M., Musco L., Gambi M.C., Castelli A., Giangrande A. (2020a) Non-indigenous polychaetes in Italian Seas: a critical review. *Mediterranean Marine Science* 21: 238-275.

Langeneck J., Lezzi M., Del Pasqua M., Musco L., Pacciardi L., Vannucci A., Gambi M.C., Giangrande A., Castelli A. (*submitted*) New records of rare and poorly known polychaetes in Italian seas. *Atti della Società Toscana di Scienze Naturali, Memorie, Serie B.*

Langeneck J., Scarpa F., Maltagliati F., Sanna D., Barbieri M., Cossu P., Mikac B., Curini-Galletti M., Castelli A., Casu M. (2020b) A complex species complex: the controversial role of ecology and biogeography in the evolutionary history of *Syllis gracilis* Grube, 1840 (Annelida, Syllidae). *Journal of Zoological Systematics and Evolutionary Research* 58: 66-78.

Langeneck J., Verni S., Stefanni S., Musco L., Castelli A. (2022a) Diversity and biogeography of deep-sea Onuphidae (Annelida: Eunicida) from the Mediterranean Sea. *81° Congresso UZI, Trieste, 20-23 Settembre 2022, Book of Abstract*: 84.

Lavesque N., Daffe G., Bonifacio P., Hutchings P. (2017) A new species of the *Marphysa sanguinea* complex from French waters (Bay of Biscay, NE Atlantic) (Annelida, Eunicidae). *Zookeys* 716: 1-17.

Lavesque N., Hutchings P., Daffe G., Nygren A., Londoño-Mesa M.H. (2019) A revision of the French Trichobranchidae (Polychaeta), with descriptions of nine new species. *Zootava* 4664: 151-190.

Lavesque N., Daffe G., Londoño-Mesa M.H., Hutchings P. (2021) Revision of the French Terebellidae *sensu stricto* (Annelida, Terebelliformia), with descriptions of nine new species. *Zootaxa* 5038: 1-63.

Lavrador A.S., Fontes J.T., Vieira P.E., Costa F.O., Duarte S. (2023) Compilation, revision and annotation of DNA barcodes of marine invertebrate non-indigenous species (NIS) occurring in European coastal regions. *Diversity* 15: 174.

Lezzi M. (2017) *Caulleriella mediterranea*, a new species of polychaete (Annelida: Cirratulidae) from the central Mediterranean Sea. *The European Zoological Journal* 84: 380-389.

Licher F. (1999) Revision der Gattung *Typosyllis* Langerhans, 1879 (Polychaeta: Syllidae). Morphologie, Taxonomie und Phylogenie. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft* 551: 1-336.

Lobo J., Teixeira M.A.L., Borges L.M.S., Ferreira M.S.G., Hollatz C., Gomes P.T., Sousa R., Ravara A., Costa M.H., Costa F.O. (2016) Starting a DNA barcode reference for shallow water polychaetes from the southern European Atlantic coast. *Molecular Ecology Resources* 16: 298-313.

López E. (2011) Occurrence of *Fauveliopsis glabra* (Fauveliopsidae: Annelida: Polychaeta) in a rhodolith bed off the south-eastern coast of Spain (western Mediterranean Sea). *Marine Biodiversity Records* 4: e38.

Maltagliati F., Camilli L., Lardicci C., Castelli A. (2001) Evidence for morphological and genetic divergence in *Perinereis cultrifera* (Polychaeta: Nereididae) from two habitat types at Elba Island. *Journal of the Marine Biological Association of the U.K.* 81: 411-414.

Martín D., Gil J., Zanol J., Meca M.A., Pérez Portela R. (2020) Digging the diversity of Iberian bait worms *Marphysa* (Annelida, Eunicidae). *PLoS ONE* 15: e0226749.

Martínez A., Di Domenico M., Worsaae K. (2013) Evolution of cave *Axiokebuita* and *Speleobregma* (Scalibregmatidae, Annelida). *Zoologica Scripta* 42: 623-636.

Mastrototaro F., D'Onghia G., Corriero G., Matarrese A., Maiorano P., Panetta P., Gherardi M., Longo C., Rosso A., Sciuto F., Sanfilippo R., Gravili C., Boero F., Taviani M., Tursi A. (2010) Biodiversity of the white coral bank off Cape Santa Maria di Leuca (Mediterranean Sea): An update. *Deep Sea Research Part II: Topical Studies in Oceanography* 57: 412-430.

Micaroni V., Strano F., Crocetta F., Di Franco D., Piraino S., Gravili C., Rindi F., Bertolino M., Costa G., Langeneck J., Bo M., Betti F., Froglia C., Giangrande A., Tiralongo F., Nicoletti L., MeDağli P., Arzeni S., Boero F. (2022) Project "Biodiversity MARE Tricase": A species inventory of the coastal area of southeastern Salento (Ionian Sea, Italy). *Diversity* 14: 904.

Micaroni V., Strano F., Di Franco D., Langeneck J., Gravili C., Bertolino M., Costa G., Rindi F., Froglia C., Crocetta F., Giangrande A., Nicoletti L., Medagli P., Zuccarello V., Arzeni S., Bo M., Betti F., Mastrototaro F., Lattanzi L., Piraino S., Boero F. (2018) "Project Biodiversity MARE Tricase": Biodiversity research, monitoring and promotion at MARE Outpost (Apulia, Italy). *Rendiconti Licei Scienze Fisiche e Naturali* 29: 599-604.

Mikac B., Hutchings P. (2017) One new species of *Pista* Malmgren, 1866 (Annelida: Terebellidae) and one new species of *Pistella* Hartmann-Schröder, 1996 (Annelida: Terebellidae) from the Adriatic Sea (Mediterranean). *Journal of the Marine Biological Association of the U.K.* 97: 943-953.

Minelli A. (2008) Hirudinea. *In Relini G. (ed.), Checklist della flora e della fauna dei mari italiani (parte I). Biologia Marina Mediterranea* 15 (suppl. 1): 379.

Molina-Acevedo I.C. (2018) Morphological revision of the Subgroup 1 Fauchald, 1970 of *Marphysa* de Quatrefages, 1865 (Eunicidae: Polychaeta). *Zootaxa* 4480: 1-125.

Mucciolo S., Desiderato A. (*in press*) Broadening the occurrence of *Sabellaria spinulosa* (Annelida) in Mediterranean Sea: new records along the Adriatic coast. *Mediterranean Marine Science*.

Musco L., Çinar M.E., Giangrande A. (2005) A new species of *Sphaerosyllis* (Polychaeta: Syllidae: Exogoninae) from the coasts of Italy and Cyprus (Eastern Mediterranean Sea). *Italian Journal of Zoology* 72: 161-166.

Musco L., Giangrande A. (2005a) A new sponge-associated species, *Syllis mayeri* n. sp. (Polychaeta: Syllidae), with a discussion on the status of *S. armillaris* (Müller, 1776). *Scientia Marina* 49: 467-474.

Musco L., Giangrande A. (2005b) Mediterranean Syllidae (Annelida: Polychaeta) revisited: biogeography, diversity and species fidelity to environmental features. *Marine Ecology Progress Series* 304: 143-153.

Musco L., Licciano M., Giangrande A. (2021) Diversity and distribution of Sabellida (Annelida) under protection regimes. *Water* 13: 1491.

Murina G.V.V. (1982) On the sipunculans and echiurans fauna of the Mediterranean and Iberian Basin. *Trudy Instituta Okeanologii Akademii Nauk SSSR* 117: 178-191 [in Russian].

Nygren A. (2004) Revision of Autolytinae (Syllidae: Polychaeta). *Zootaca* 680: 1-314.

Nygren A. (2014) Cryptic polychaete diversity: a review. *Zoologica Scripta* 43: 172-183.

Nygren A., Pleijel F. (2011) From one to ten in a single stroke – resolving the European *Eumida sanguinea* (Phyllodocidae, Annelida) species complex. *Molecular Phylogenetics and Evolution* 58: 132-141.

Nygren A., Parapar J., Pons J., Meißner K., Bakken T., Kongsrud J.A., Oug E., Gaeva D., Sikorski A., Johansen R.A., Hutchings P.A., Lavesque N., Capa M. (2018) A mega-cryptic species complex hidden among one of the most common annelids in the North East Atlantic. *PLoS ONE* 13: e0198356.

Pancucci-Papadopoulou M.A. (2008) Sipuncula. *In Relini G. (ed.), Checklist della flora e della fauna dei mari italiani (parte I)*. *Biologia Marina Mediterranea* 15 (suppl. 1): 376-378.

Parapar J., Moreira J., Núñez J., Barnich R., Brito M.C., Fiege D., Capaccioni-Azzati R., El-Haddad M. (2015) *Fauna Ibérica 41. Annelida, Polychaeta IV*. CSIC, Madrid, 416 pp.

Parapar J., Capa M., Nygren A., Moreira J. (2020) To name but a few: descriptions of five new species of *Terebellides* (Annelida, Trichobranchidae) from the North East Atlantic. *Zookeys* 992: 1-58.

Philippi R.A. (1844) Einige Bemerkungen über die Gattung *Serpula*, nebst Aufzählung der von mir im Mittelmeer mit dem Their beobachteten Arten. *Archiv für Naturgeschichte, Berlin* 10: 186-198.

Pleijel F. (1991) Phylogeny and classification of the Phyllodocidae (Polychaeta). *Zoologica Scripta* 20: 225-261.

Putignano M., Gravili C., Giangrande A. (*in press* a) The peculiar case of *Myxicola infundibulum* (Polychaeta: Sabellidae): echo from a science 200 years old and description of four new taxa in the Mediterranean Sea. *The European Zoological Journal*

Putignano M., Çinar M.E., Pelaprat C., Giangrande A. (*in press* b) New combinations of two *Pseudobranchiomma* species (Annelida: Sabellidae); the difficulty in establishing a boundary layer among genera within the Sabellinae. *Mediterranean Marine Science*

QGIS Development Team (2023) QGIS Geographic Information System. Open Source Geospatial Foundation Project. http://qgis.osgeo.org

Ramos J.M. (1976) Lumbrineridae (Polychètes errantes) de Méditerranée. *Annales de l'Institut océanographique* 52: 103-137.

Ravaglioli C., Gribben P.E., Langeneck J., Tempesti J., Bulleri F. (2023) Temporal consistency of a facilitation cascade on shallow rocky reefs. *Estuarine, Coastal and Shelf Science* 280: 108187.

Righi S., Prevedelli D., Simonini R. (2020) Ecology, distribution and expansion of a Mediterranean native invader, the fireworm *Hermodice carunculata* (Annelida). *Mediterranean Marine Science* 21: 558-574.

Rota E. (2008) Oligochaeta. *In Relini G. (ed.), Checklist della flora e della fauna dei mari italiani (parte I)*. *Biologia Marina Mediterranea* 15 (suppl. 1): 380-385.

Rullier F., Amoureux L. (1968) Annélides Polychètes du Golfe de Tarente. Resultats des campagnes de l'Albatros (1966-1967). *Annali del Museo Civico di Storia Naturale Giacomo Doria* 77: 386-407.

Salazar-Vallejo S.I. (2018) Revision of *Hesione* Savigny *in* Lamarck, 1818 (Annelida, Errantia, Hesionidae). *Zoosystema* 40: 227-325.

San Martín G. (2003) *Fauna Ibérica 21, Annelida, Polychaeta II: Syllidae*. CSIC, Madrid, 554 pp.

San Martín G., Hutchings P., Aguado M.T. (2008) Syllinae (Polychaeta: Syllidae) from Australia. Part 1. Genera *Branchiosyllis, Eurysyllis, Karroonsyllis, Parasphaerosyllis, Plakosyllis, Rhopalosyllis, Tetrapalpia* n. gen., and *Xenosyllis. Records of the Australian Museum* 60: 119-160.

San Martín G., López E. (2000) Three new species of *Syllis* (Syllidae: Polychaeta) from Iberian coasts. *Cahiers de Biologie Marine* 41: 425-433.

San Martín G., Lucas Y., Hutchings P. (2023) The genus *Syllis* Savigny *in* Lamarck, 1881 [*sic*] (Annelida: Syllidae: Syllinae) from Australia (Part 3): new species and redescription of previously described species. *Zootaxa* 5230: 251-295.

Scaps P., Rouabah A., Leprêtre A. (2000) Morphological and biochemical evidence that *Perinereis cultrifera* (Polychaeta: Nereididae) is a complex of species. *Journal of the Marine Biological Association of the U.K.* 80: 735-736.

Schimmenti E., Lo Brutto S., Badalamenti F., Giangrande A., Mikac B., Musco L. (2015) DNA-barcoding to solve the tricky case of co-occurring *Sabellaria* (Annelida) species in the Mediterranean Sea. *Biologia Marina Mediterranea* 22: 109-110.

Sikorski A.V., Radashevsky V.I., Castelli A., Pavlova L.V., Nygren A., Malyar V.V., Borisova P.B., Mikac B., Rousou M., Martin D., Gil J., Pacciardi L., Langeneck J. (2021) Revision of the *Laonice bahusiensis* complex (Annelida: Spionidae) with a description of three new species. *Zootaxa* 4996: 253-283.

Sjölin E., Erséus C. (2001) New species of *Heterodrilus* (Oligochaeta, Tubificidae) and records of *H. maiusculus* from the Mediterranean Sea. *Italian Journal of Zoology* 68: 223-228.

Stoeckle M.Y., Mishu M.D., Charlop-Powers Z. (2020) Improved environmental DNA reference library detects overlooked marine fishes in New Jersey, United States. *Frontiers in Marine Science* 7: 226.

Strelzov V.E. (1973) *Polychaete worms of the family Paraonidae Cerruti, 1909 (Polychaeta, Sedentaria)*. Akademia Nauk, Moscow, USSR, 170 pp. [in Russian].

Sun Y., Wong E., Keppel E., Williamson J.E., Kupriyanova E.K. (2017) A global invader or a complex of regionally distributed species? Clarifying the status of an invasive calcareous tubeworm *Hydroides dianthus* (Verrill, 1873) (Polychaeta: Serpulidae) using DNA barcoding. *Marine Biology* 164: 28.

Sun Y., Syu J., Li X. (2018) A new species of *Leodamas* Kinberg, 1866 (Polychaeta: Orbiniidae) from the Yellow Sea and the East China Sea. *Acta Oceanologica Sinica* 37: 130-135.

Sun Y., Tao X., Tang B., Li X. (2022) Two new species of *Leodamas* Kinberg, 1866 (Anenlida, Orbiniidae) from China seas. *Journal of Oceanology and Limnology* 40: 1654-1661.

Teixeira M.A.L., Vieira P.E., Ravara A., Costa F.O., Nygren A. (2022a) From 13 to 22 in a second stroke: revisiting the European *Eumida sanguinea* (Phyllodocidae: Annelida) species complex. *Zoological Journal of the Linnean Society* 196: 169-197.

Teixeira M.A.L., Langeneck J., Vieira P.E., Hernández J.C., Sampieri B.R., Kasapidis P., Mucciolo S., Bakken T., Ravara A., Nygren A., Costa F.O. (2022b) Reappraisal of the hyperdiverse *Platynereis* *dumerilii* (Annelida: Nereididae) species complex in the Northern Atlantic, with the description of two new species. *Invertebrate Systematics* 36: 1017-1061.

Teixeira M.A.L., Bakken T., Vieira P.E., Langeneck J., Sampieri B.R., Kasapidis P., Ravara A., Nygren A., Costa F.O. (2022c) The curious and intricate case of the European *Hediste diversicolor* (Annelida, Nereididae) species complex, with description of two new species. *Systematics and Biodiversity* 20: 1-39.

Teixeira M.A.L., Vieira P.E., Fenwick D., Langeneck J., Pleijel F., Sampieri B.R., Hernández J.C., Ravara A., Costa F.O., Nygren A. (2023) Revealing the diversity of the green *Eulalia* (Annelida, Phyllodocidae) species complex along the European coast, with description of three new species. *Organisms Diversity & Evolution* 10.1008/s12127-022-00597-1

Tempesti J., Langeneck J., Maltagliati F., Castelli A. (2020) Macrobenthic fouling assemblages and NIS success in a Mediterranean port: The role of use destination. *Marine Pollution Bulletin* 150: 110768.

Toso A., Musco L. (2023) The hidden invasion of the alien seagrass *Halophila stipulacea* ((Forsskål) Ascherson) along Southeastern Italy. *Mediterranean Marine Science* 24: 96-100.

Tovar-Hernández M.A., Licciano M., Giangraned A. (2007) Revision of *Chone* Kroyer, 1856 (Polychaeta: Sabellidae) from the eastern central Atlantic and Mediterranean Sea with descriptions of two new species. *Scientia Marina* 71: 315-338.

Ulltin F. (2019) *Cryptic speciation in the paddle worms* Nereiphylla rubiginosa *and* Pterocirrus macroceros. Unpublished BSc Thesis, Department of Biological and Environmental Sciences, University of Gothenburg, 33 pp.

Villamor A., Costantini F., Abbiati M. (2014) Genetic structuring across marine biogeographic boundaries in rocky shore invertebrates. *PLoS ONE* 9: e110135.

Wäge J., Valvassori G., Hardege J.D., Schulze A., Gambi M.C. (2017) The sibling polychaetes *Platynereis dumerilii* and *Platynereis massiliensis* in the Mediterranean Sea: are phylogeographic patterns related to exposure to ocean acidification? *Marine Biology* 164: 199.

Wasson B., Giangrande A., Tovar-Hernández M.A. (2017) Re-establishment of *Chone filicaudata* Southern, 1914 (Annelida: Sabellidae) and the first record of the Mediterranean species *Dialychone dunerificta* (Tovar-Hernández et al., 2007) (Annelida: Sabellidae) in British waters. *Cahiers de Biologie Marine* 58: 371-378.

Wieczorek J, Bloom D, Guralnick R, Blum S, Döring M, et al. (2012) Darwin Core: An Evolving Community-Developed Biodiversity Data Standard. *PLoS ONE* 7(1): e29715.

Weigert A., Bleidorn C. (2016) Current status of annelid phylogeny. *Organisms Diversity and Evolution* 16: 345-362.

Willassen E., Westgaard J.-I., Kongsrud J.A., Hanebrekke T., Buhl-Mortensen P., Holte B. (2022) Benthic invertebrates in Svalbard fjords – when metabarcoding does not outperform traditional biodiversity assessment. *PeerJ* 10: e14321.

Yang W., Zhang W. (2019) A worm-inspired robot flexibly steering on horizontal and vertical surfaces. *Applied Sciences* 9: 2168.

Zibrowius H. (1968) Étude morphologique, systématique et écologique des Serpulidae (Annelida Polychaeta) de la région de Marseille. *Recueil des Travaux de la Station marine d'Endoume* 43: 81-252.