ESENIAS Workshop: marine group

Athens 12-13 October 2015

Venue: HCMR - Agios Kosmas, Hellenikon

The meeting was attended by Dr Argyro Zenetos (chairperson), Dr Paraskevi Karachle (rapporteur), and Dr Fabio Crocetta from HCMR, Dr Katja Jelic representing Croatia, Dr Petya Ivanova and Dr Elitsa Stefanova, representing Bulgaria and Dr Konstantinos Tsiamis, invited speaker from the Joint Research Center, Italy.

1st DAY Sessions

Following a welcome and a round of introductions, A. Zenetos communicated an introductory presentation on the ESENIAS-TOOLS project aim and objectives (prepared by Dr Teodora Trichkova). The structure of the project with emphasis on the WP related to Marine Alien species was further analysed.

The state of art on marine species in ESENIAS was presented by A. Zenetos. Starting from a previous analysis of Marine data in the ESENIAS area (2013: Zenetos & Karachle, 2015 in ESENIAS book), some preliminary data were shown based on the update by September 2015. A preliminary list of species and their distribution have been compiled from all available sources (websites, recent literature, reports). Comparison of 2015 data with those of 2013, shows an inflation of NIS in Black Sea countries (Bulgaria, Romania, Turkey) in 2015. It is believed that this is an artifact due to the bulk of data which were transferred from the AquaNIS website. A need for validation of these data is needed by country experts and taxonomists.

To fulfill obligation for task 2.4 'Prioritisation of species and preparation of data fact sheets for priority species' a list with the most invasive species throughout the Mediterranean and the Black Sea at Marine Strategy Framework Directive Area level, was prepared so as to be widely discussed. This list, which currently includes 90 species, will be the basis for the list of priority species within the ESENIAS area.

The presentation concluded that what is needed within the ESENIAS obligations for WP2 is: Validation of species lists, Update of distributions at the country level, inclusion of pathways/vectors, development of National Networks and above all **COMMUNICATION at: NATIONAL, REGIONAL, EUROPEAN and WORLD LEVEL.**

Paraskevi Karachle delivered a presentation on existing networks of marine experts in ESENIAS countries. National experts and related networks in a local/national scale are the foundation for info provision to larger networks and EU policies. Yet, in most countries such foundations are lacking, and no national experts' networks exists. The established networks (e.g. DAISIE, NOBANIS, EASIN, SIBM, AQUANIS, REABIC) span outside the geographic coverage of a single country and include experts from more

than one country. In DAISIE 23 experts , are listed from the EASIN countries, with 8 of them working on more than one country.

Among ESENIAS countries, national networks exist only in Greece (ELNAIS) and Italy (SIBM), whereas recently such an effort was launched in Cyprus (CYIAS). In order for those networks to be developed, a web portal/database should first be created. Such a portal/database should, among others, include a detailed list of: (a) national experts; (b) related institution data, (c) related projects at a national level; (d) related publications; and (e) NIS present in the country.

Konstantinos Tsiamis, as representative of JRC, was invited to present the EASIN (http://easin.jrc.ec.europa.eu/) network, highlighting recent updates in the context of the new EU regulation 1143/2014.

EASIN has been developed and managed by JRC, and it is operational since 2012. It has been conceived as a scientific tool aimed at providing scientific information in support to the EU policy on biodiversity and on invasive alien species (IAS), gathering, integrating and harmonizing information on biology, origin, pathways, spatial and temporal occurrences of AS, from several sources worldwide. The EASIN catalogue currently includes more than 14.000 alien species recorded in Europe, and can retrieve related spatial occurrence records if present in the databases of the collaborators' network. EASIN uses publicly available data, providing links, and reference to all relevant data sources. To guarantee the quality of the data and their continuous update, an EASIN Editorial Board has been established.

EASIN is the official supporting tool for the implementation of the EU Regulation 1143/2014 on IAS, in force since 1 January 2015. To this end, the system is undergoing further development with the creation of a Notification System (NOTSYS), through which MS must notify the EU Commission and the other MS about the detection of an IAS of EU concern, and to report on the eradication measures applied as well as their efficacy.

The enlargement of the data partners is a key issue for EASIN to ensure a high quality of data and for improving their geographical coverage across Europe. Therefore, EASIN is seeking to increase the number of data partners by establishing new collaborations, such as with the ESENIAS network. Details on the existing collaborations procedures between EASIN and other data partners were presented by JRC. Data processing by EASIN, addressing data standardization issues and protocols for sharing information were also pointed and discussed.

Prior to the presentation of Fabio Corcetta's presentation, a discussion took place with respect to rapid assessment surveys (RAS). The Greek team will perform RAS based on budget, whereas the Bulgarian team has planned six RAS (one already done covering both soft and hard substrata, and there are five more to be conducted). The plans for RAS in Croatia has to be discussed with the Croatian team.

Fabio Crocetta presented the progress in archiving species and distribution data in ESENIAS countries, and highlighted some technical issues encountered.

A preliminary data compilation, from HCMR/EEA (already hosted in EASIN), ELNAIS, AquaNIS, PERSEUS (FP7) and recent publications, produced a preliminary list of 946 species. Of these, 181 taxa have been reported exclusively from the ESENIAS Black Sea area (Bulgaria, Romania and Turkey), including some potentially exclusive freshwater species, for which a cautionary approach should be applied by the ESENIAS team. It was decided to avoid the use of a boundary date, so to include species considered naturalized in other databases or research articles. Marine species nomenclature was cross-checked *vs* WoRMS and relevant publications, although several species-specific case studies were highlighted, for which the use of "complex" and "cf." was suggested. Species included in the ESENIAS list will be further divided into alien and cryptogenic species. A need for including another category seems imperative. This can be further split into two different sub-categories: one including circumtropical species and one including recent records whose vector (whether natural or human mediated) is still unknown or debated.

The presentation of F. Crocetta was followed by a thorough discussion among the participants on the key technical issues, and the following were agreed:

- If needed the Marine Working Group, will set its own regional sea boundaries

- There will be no "extinct" species in the list, instead they will be listed as "casual"

- For species that there is a record from area-to-area within the same sea basin/area, the term "native alien" will be used. If needed, solid expert judgement for their characterization will be requested.

- Freshwater species will be excluded, unless there is evidence of their occurrence in brackish/marine waters, the latter being defined based on topography.

- The term "complex" will be used for cases of species that the binomial names are not fixed. Additionally, for questionable taxonomy the "cf" annotation will be used.

In the "Species data form" the following were agreed:

- "Common name (English/native language)", "Year of introduction" and "year of first report" will be included only when available;

- "Origin" needs to be homogenized;

- "Pathway of introduction" the CBD classification will be used;

- "Establishment success" needs to be separated from "Species status". In the former, the following categories were identified: *established, casual (not established-extinct), invasive and unknown*. In the "species status" the following categories were identified: **alien, cryptogenic, questionable and native/alien**.

With respect to the network that needs to be created, the "Expert Data Form" and the "Institution Data Form" will be transferred into excel worksheets and distributed among the partners. For each ESENIAS country, the following persons will provide the necessary data:

Albania: Argyro Zenetos
Bosnia & Herzegovina: (no-one assigned yet)
Bulgaria: Petya Ivanova
Croatia: Katjia Jelic
Cyprus: Aggeliki Martinou
Greece: experts included in ELNAIS database
Italy: experts included in SIBM database
Montenegro: Argyro Zenetos
Romania: Marius Skolka
Slovenia: Argyro Zenetos
Turkey: İrfan UYSAL

This list should be filled in and returned to the coordinatorof WP2 (iArgyro Zenetos) by mid-November. Additional help will be requested at the WP10 meeting on networks in December, Istanbul meeting.

Moreover, the WG agreed that the "Species Data Form" needs to be further discussed with Teodora Trichkova, during the kick-off meeting, 26-28 October in Sofia.

2nd DAY Sessions

Petya Ivanova discussed with the group the list of species prepared for Bulgaria. Overall, 40 phytoplankton, 4 macrophyta, 8 zooplankton, 19 zoobenthos and 9 fish species were listed as aliens.

According to ESENIAS project the target marine species, which have to be analyzed by surveys along Bulgarian Black Sea coast are *Mnemiopsis leidyi*, *Beroe ovata* and *Rapana venosa*. Six surveys are planned to be carried out in front of Varna Bay. The first one was already done at the end of September, according to the following methodology:

For zooplankton: The samples were collected by Juday net (opening diameter 36 cm, mesh size 150 μm) and Horizontal net (opening diameter 60 cm; mesh size 300 μm);Ctenophores were sorted and body length (L, mm) of each individual were measured; Regarding the size structure of the population, three size classes based on the individuals body length of *M. leidyi* were categorized and referred to age groups (juveniles - up to 10 mm; transitional - 10-30 mm; adults - more than 30 mm length) (Mayer, 1912).

Preliminary results from the first survey

Station	Latitude	Longitude	Depth	Beroe ovata (ind.m-3)	Mnemiopsis leidyi (ind.m-3)
B1	43°11.87	27°55.67	8	0,11	0,04
B2	43°11.08	27°55.69	12	0,74	51,62
B3	43°11.08	27°55.69	7,5	1,49	15,02

For zoobenthos: *R. venosa* is subjected to study in two bottom substrates – sandy and rocky.

Samples have been collected by diving techniques - all specimens were taken within the frame with size 1x1 m.

Preliminary results from the first survey

R. venosa population is more abundant on rocky bottom where his pray is *Mytilus galloprovincialis* , than on sandy substrate, where the species feeds on *Chamelea gallina*.

According to invasive **fish species** - two samples from Pacific Mullet (*Liza haematocheila*), were collected on March and April 2015 form the Varna Bay. On the base of allozyme analyses carried out, the species identity of the two mullet samples, caught form Varna Bay in 2015 were proved

Then, Katja Jelic presented the status of NIS in Croatia. According to the obligations proscribed by the Nature Protection Act, Croatian Agency for the Environment and Nature (former State Institute for Nature Protection) establishes and runs Nature Protection Information System (NPIS) of the Republic of Croatia. It is consisted of databases, application solutions and web services intended for the storage, maintenance and sharing of data related to different components of biological and landscape diversity and the protection of nature in Croatia. NPIS has a web portal (Bioportal, www.iszp.hr). At the moment Crofauna database is under preparation, which will be part of the NPIS and which will also include alien species. The Agency also runs web site on invasive alien species (www.invazivnevrste.hr).

Both P. Ivanova and K. Jelic were committed to send the MSFD Initial Assessment documents on D2, with relevant NIS lists and additional papers to A. Zenetos. K. Jelic stated that she will send the preliminary list of alien species recorded for Croatia and she will also compare it with the list which was prepared by HCMR.

The list of priority species for the ESENIAS countries, proposed by HCMR, was discussed in detail and the priority species were reduced to 55, whereas 10 more were indicated as possible species to be included (Table 1 of this report).

Table 1. List of priority species for the ESENIAS countries, as agreed in the WG meeting. *indicates commercially exploited species.

Phylum	species
To be included in the list	
Chlorophyta/ Bryopsidophyceae	*Codium parvulum*
Chlorophyta/ Bryopsidophyceae	*Codium fragile*
Chlorophyta/ Bryopsidophyceae	*Caulerpa cylindracea*
Chlorophyta/ Bryopsidophyceae	*Caulerpa taxifolia*
Chordata/Actinopterygii	*Fistularia commersonii*
Chordata/Actinopterygii	*Lagocephalus sceleratus*
Chordata/Actinopterygii	*Liza chaematocheila*
Chordata/Actinopterygii	*Plotosus lineatus*
Chordata/Actinopterygii	*Pterois miles*
Chordata/Actinopterygii	*Siganus luridus**
Chordata/Actinopterygii	*Siganus rivulatus**
Chordata/Actinopterygii	*Upeneus moluccensis**
Chordata/Actinopterygii	*Upeneus pori**
Chordata/Ascidiacea	*Microcosmus squamiger*
Cnidaria/Anthozoa	*Diadumene lineata*
Cnidaria/Hydrozoa	*Clytia hummelincki*
Cnidaria/Hydrozoa	*Clytia linearis*
Cnidaria/Hydrozoa	*Garveia franciscana*
Cnidaria/Scyphoza	*Cassiopea andromeda*
Cnidaria/Scyphoza	*Rhopilema nomadica*
Crustacea/Copepoda	*Pseudodiaptomus marinus*
Crustacea/Decapoda	*Callinectes sapidus**
Crustacea/Decapoda	*Percnon gibbesi*
Crustacea/Decapoda	*Portunus segnis*
Crustacea/Decapoda	*Hemigrapsus sanguineus*
Crustacea/Decapoda	*Penaeus aztecus**
Crustacea/Stomatopoda	*Erugosquilla massavensis*
Ctenophora	*Mnemiopsis leidyi*
Ctenophora	*Beroe ovata*
Mollusca/Bivalvia	*Anadara kagoshimensis*
Mollusca/Bivalvia	*Anadara transversa*
Mollusca/Bivalvia	*Arcuatula senhousia*
Mollusca/Bivalvia	*Brachidontes pharaonis*
Mollusca/Bivalvia	*Dendostrea folium*

Mollusca/Bivalvia	*Xenostrobus securis*
Mollusca/Bivalvia	*Ruditapes philippinarum**
Mollusca/Bivalvia	*Pinctada radiata*
Mollusca/Gastropoda	*Aplysia dactylomela*
Mollusca/Gastropoda	*Bursatella leachii*
Mollusca/Gastropoda	*Conomurex persicus**
Mollusca/Gastropoda	*Rapana venosa*
Mollusca/Gastropoda	*Sepioteuthis lessoniana**
Ochrophyta/Phaeophyceae	*Sargassum muticum*
Ochrophyta/Phaeophyceae	*Stypopodium schimperi*
Plants	*Halophila stipulacea*
Polychaeta	*Branchiomma bairdi*
Polychaeta	*Branchiomma luctuosum*
Polychaeta	*Desdemona ornata*
Polychaeta	*Ficopomatus enigmaticus*
Polychaeta	*Polydora cornuta*
Polychaeta	*Pseudonereis anomala*
Polychaeta	*Streblospio gynobranchiata*
Rhodophyta/Florideophyceae	*Asparagopsis taxiformis*
Rhodophyta/Florideophyceae	*Lophocladia lallemandii*
Rhodophyta/Florideophyceae	*Womersleyella setacea*
Potentially to be included in the list	
Chordata/Actinopterygii	*Saurida lessepsianus**
Chordata/Ascidiacea	*Etrumeus golani**
Crustacea/Decapoda	*Penaeus japonicus**
Crustacea/Decapoda	*Metapenaeus monoceros**
Crustacea/Decapoda	*Metapenaeus stebbingi**
Crustacea/Decapoda	*Rhithropanopeus harrisii*
Mollusca/Bivalvia	*Spondylus spinosus*
Mollusca/Gastropoda	*Melibe viridis*
Polychaeta	*Notomastus mossambicus*
Polychaeta	*Pseudopolydora paucibranchiata*

The general conclusions of the meeting are summarized as follows:

-   The HCMR team will circulate the preliminary species lists to the countries. Along with the lists, guidelines will be sent on how to fill in/validate each country list

-   Each country list will be the responsibility of the corresponding country.

-   Additional taxonomic expertise with respect to species via the EASIN editorial board will be requested (this will be further discussed in the Brussels meeting, December 1st, that A. Zenetos and F. Crocetta will participate in).

-   The priority species list as discussed in this meeting will be further distributed among partners for input. This list should be finalized, and then GIS data will be requested from each country. Additionally, species included in this list will be considered as priority species for RAS.

-   ESENIAS needs to become part of the EASIN network, as agreed by the participants. The participants of the WG in Athens acknowledge this collaboration with EASIN as crucial for (a) validation of data; (b) active involvement of experts; (c) dissemination.

    -   By joining EASIN network, ESENIAS can:
        ✓ increase its credibility
        ✓ increase its visibility
        ✓ increase its impact
        ✓ benefit through mutual data exchange
        ✓ Such collaboration should be discussed and agreed upon in the kick-off meeting.

    -   A proposal will be made to the ESENIAS TOOLS consortium to publish a guide of priority species based on the fact-sheets that will be produced. The fact sheets should be as simple as possible in order to be able to turn them into leaflets. Each fact sheet will include the following information per species:

        o Picture
        o Taxonomy (Phylum, Class, Family)
        o Origin
        o Pathway

- o Biology/habitat
- o Diagnostic features (including features of related species)
- o GIS maps of their distribution in the Mediterranean and Black Seas
- o Impact (on ecosystem services, human, and commercial importance)

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Finally, with respect to an ESENIAS future book, the participants have agreed that there should be a Marine Section comprised of four chapters:

- o Chapter 1: Trends and distribution

- o Chapter 2: Origin & pathways

- o Chapter 3: Impacts

- o Chapter 4: Policy and priority species.

AGENDA

MONDAY 12.10.2015

10.00 - 11.30 AM

Introduction to ESENIAS: **Argyro Zenetos**

State of art on marine species in ESENIAS: **Argyro Zenetos**

Data needs in compliance with EASIN: **Konstantinos Tsiamis**

Network of marine experts in ESENIAS countries: **Paraskevi Karachle**

11.30 - 12.00 AM - Coffee break

12.00 AM - 1.00 PM

Technical issues for ESENIAS DB: **Fabio Crocetta**

1.00 - 2.00 PM - Lunch break

2.00 - 5.00 PM

Discussion on technical issues: regional seas borders, definitions on establishment success, inclusion of cryptogenic/extinct species, pathways scheme, literature in pdf: **All participants**

TUESDAY 13.10.2015

9.00 - 11.30 AM

Presentation of Country reports: **All participants**

ESENIAS data validation for all countries: **All participants**

11.30 - 12.00 AM - Coffee break

12.00 AM - 1.00 PM

Prioritization and impacts of invasive alien species: what we know, what we need: **Argyro Zenetos, Fabio Crocetta, Paraskevi Karachle**

1.00 - 2.00 PM - Lunch break

2.00 PM

Finalization of first report (due 15 October): **All participants**

List of Participants

Name	Institution	Mail address
Fabio Crocetta	HCMR, Athens, Greece	fabiocrocetta@hcmr.gr
Katja Jelic	Croatian Agency for the Environment and Nature, Zagreb, Croatia	katja.jelic@dzzp.hr
Petya Ivanova	Institute of Oceanology, BAS, Varna, Bulgaria	pavl_petya@yahoo.com
Paraskevi Karachle	HCMR, Athens, Greece	pkarachle@hcmr.gr
Elitsa Stefanova	Institute of Oceanology, BAS, Varna, Bulgaria	stefanova_es@abv.bg
Konstantinos Tsiamis	Joint Research Center, Italy	konstantinos.tsiamis@jrc.ec.europa.eu
Argyro Zenetos	HCMR, Athens, Greece	zenetos@hcmr.gr

Administrative support: Ms Penelope Sakellariou