



## Summer School Contanta

### Milestone Nr. 23





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<b>Responsible</b>		Aldo Drago (UoM)	
<b>Authors &amp; Institutes Acronyms</b>		Aldo Drago (UoM), Oros Andra (NIMRD), Mariana Golumbeanu (NIMRD), Magda Nenciu (NIMRD), Marco Zavatarelli (CONISMA) Participants: UoM, NIMRD, CONISMA	
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		<b>Confidential, only for members of the consortium (CO)</b>	



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## BACKGROUND



# **PERSEUS SUMMER SCHOOL** **The contribution of environmental indices** **in meeting the objectives and principles of the** **Marine Strategy Framework Directive**

3-7 June 2013

Constanta, Romania

Organised by:  
National Institute for Marine Research and  
Development "Grigore Antipa" (NIMRD)  
Constanta, Romania

## **COURSE REPORT**





## 1. INTRODUCTION

The overall scientific objectives of PERSEUS are to identify the interacting patterns of natural and human-derived pressures on the Mediterranean and Black Seas, assess their impact on marine ecosystems and, using the objectives and principles of the Marine Strategy Framework Directive as a vehicle, to design an effective and innovative research governance framework based on sound scientific knowledge.

Well-coordinated scientific research and socio-economic analysis is applied at a wide-ranging scale, from basin to coastal. The new knowledge will advance our understanding on the selection and application of the appropriate descriptors and indicators of the MSFD. New tools will be developed in order to evaluate the current environmental status, by way of combining monitoring and modelling capabilities and existing observational systems will be upgraded and extended.

In view of reaching Good Environmental Status (GES), a scenario-based framework of adaptive policies and management schemes will be developed. Scenarios of a suitable time frame and spatial scope will be used to explore interactions between projected anthropogenic and natural pressures. A feasible and realistic adaptation policy framework will be defined and ranked in relation to vulnerable marine sectors/groups/regions in order to design management schemes for marine governance.

Finally, the project promotes the principles and objectives outlined in the MSFD across the SES. Leading research Institutes and SMEs from EU Member States, Associated States, Associated Candidate countries, non-EU Mediterranean and Black Sea countries, joined forces in a coordinated manner, in order to address common environmental pressures, and ultimately, take action in the challenge of achieving GES.

Such challenging tasks require the formulation of scientifically sound synthetic information about the state of the environment for informing policy makers and provide elements for the formulation of efficient environmental policy and management plans. In the relatively recent past a number of environmental indices formulating assessments on several aspects of the state of the marine environment have been formulated and proposed.

The summer school on **“The contribution of environmental indices in meeting the objectives and principles of the Marine Strategy Framework Directive”**, organized in Constanta, Romania, falls within the programme of activities of Work Package 8 (WP8) of the PERSEUS project, namely to create training opportunities which will strengthen the existing RTD network in the Mediterranean and Black Seas in principles such as ecosystem modeling, monitoring and environmental assessment. Between the 3th and the 7th of June of 2013, the PERSEUS Summer School was organized, hosted by the National Institute for Marine Research and Development “Grigore Antipa” (NIMRD) Constanta, Romania. The planning of the school was done jointly with Consorzio Nazionale Interuniversitario per le Scienze del Mare (CoNISMa) and the University of Malta (UoM).

The theme for this PERSEUS Summer School was targeted to give participants detailed insight into the most relevant environmental indices ranging from lower to higher trophic levels, thus contributing to build experience in the formulation of



scientifically based synthetic assessment of the state of the marine environment. The lectures on theoretical aspects were supplemented with dedicated practical applications in selecting, computing and using such tools.

## 2. PERSEUS COURSE

### 2.1 Focus of the Course

Given the strong PERSEUS focus on the scientific activities, problems and opportunities underlying the MSFD implementation and the achievement of “Good Environmental Status”, the themes of the summer school were targeted to promote the definition of high level scientific activities directly connecting and contributing to the adoption of policy measures based on the so called ecosystem-based approach, and aiming to support the adoption and implementation of the MSFD and GES. The school aimed to address the need for both EU and non-EU states to adopt a common framework and regional approach with regards to environmental policy development, common monitoring practices and the use of common assessment tools.

### 2.2 Objectives

The main objectives of the PERSEUS Summer School on the contribution of environmental indices in meeting the objectives and principles of the Marine Strategy Framework Directive can be condensed as follows:

- i. to expose participants to aspects of the theoretical and practical background on the assessment of the benthic ecological status using the index M-AMBI (multivariate AMBI - AZTI's Marine Biotic Index) and MSFD assessment issues;
- ii. to provide participants with the most important concepts related to the fishery related indices;
- iii. to get participants acquainted with the main applications of ocean color based index/eutrophication-related core set indicators CSI023 (chlorophyll-a);
- iv. to present theoretical and practical aspects of characterization of the ecological state of marine and coastal waters using Trophic index (TRIX);
- v. to establish links between different researchers involved in the field of environmental indicators related with MSFD.

### 2.3 Course Content

#### Day 1: Fishery related indices

The opening session of the course gave participants a broad overview of fishery related indices. In particular, this session briefed students about criteria and indicators related to Descriptor 3 of MSFD. Such a session also gave an insight about the size based indicators and Fmsy framework - worldwide experience. Also practical applications for Indicators' calculations - choice, examples and exercises were included, together with region specific applicability and future proposals.

#### Day 2: AMBI, M-AMBI indices and MSFD assessment issues

The main scope of this section of the course was presenting the concept of the Integrative Ecological Status Assessment in Implementing the European Water



Framework Directive and the Marine Strategy Framework Directive. Ecological indices based on macrobenthos: the case of AMBI and M-AMBI in assessing seafloor integrity status were explained to the participants, followed by practical applications of using AMBI and M-AMBI: computation, application and exercises.

### Day 3: Characterization of the ecological state of marine and coastal waters using the Trophic Index (TRIX)

Within this session, participants were briefed on definition of environmental indices and their use in MSFD, coastal eutrophication and socio-economic aspects related with eutrophication management. Participants were also given an overview of Northern Adriatic sea system: Emilia-Romagna coastal waters, N/P ratio and the history of the Trophic Index, follow in the afternoon session by practical examples of computation, applications and exercises using TRIX.

### Day 4: Field trip in Constanta Harbour

### Day 5: Ocean Color Based Index

The scope of this session was the assessment of existing Ocean Color based indicators on Eutrophication. The Ocean Color products: what is available and how to access to the data were overviewed, and a comparison of ocean color and in situ chl-a products, together with a specific case for the Mediterranean Sea were presented. Practical examples related with Ocean Color data access, Chl-a Climatology computation and Ocean Color trend Index: computations were included in the afternoon session.

## **2.4 Approach**

A highly flexible didactic approach was adopted throughout the course, with interactive lectures generally being delivered to participants in the mornings and practical applications on using MSFD related indicators in the afternoons. During the course, open discussion sessions were held where participants were given the opportunity to challenge and question concepts delivered during the lectures and to express their own views. Different types of applications of environmental indicators were explored, ranging from lower to higher trophic levels. All lecturers at the summer school provided participants with extensive bodies of valuable literature related to environmental indices applied for the assessments of several aspects of the state of the marine environment and familiarized them with the most recent developments in such a field.

## **2.5. Targeted participants**

The school appealed to a broad range of participants, young researchers and PhD students, from both PERSEUS partner and non-partner institutions, with a scientific background in biological, physical and/or chemical oceanography, willing to expand their field of interest and to disseminate the experience gained from the school to others.



A preliminary screening phase of 29 summer school applicants was conducted by the Selection Committee of PERSEUS: the course scientific coordinator, WP8 leader and the course local organizer. School participants were chosen on the basis of their potential, with the most promising and qualified candidates being generally favored. Selected school participants were young scientists who had some degree of experience and involvement in the field of environmental indices.

On top of the selection, 7 Romanian scientists (5 NIMRD & 2 GeoEcomar) participated at no cost to the project. Overall, 20 participants attended the course (Fig.1). Participants hailing a number of countries: from Italy (3 participants), Spain (2), Croatia (1), Turkey (2), Russia (1), Romania (7), Bulgaria (1) and Ukraine (3).



**Figure 1:** Group photo of THE PERSEUS Summer School participants

## 2.6 Course outcome

The summer school attained a high degree of excellence, namely as a result of the high qualifications of lecturers, who briefed participants throughout the summer school and also as a result of the participant screening process, which ensured a high degree of quality, interest and enthusiasm amongst participants as well. The school's success can also be ascribed to the high quality of the didactic exercises to which students were confronted in its delivery.

The summer school format was a highly interactive one and lecturers continuously prodded participants into conveying their own professional environmental indices-related experience in order to provide further insight to the other participants and into asking thought-provoking questions. Participants were generally receptive to the synergistic approach assumed by lecturers and actively contributed towards making the course a success.

As a result of the conduction of this summer school, a number of Mediterranean and Black Sea young researchers were trained in the basics of MSFD environmental indices, which they can utilise in their respective institutes for the better management of marine resources, thus contributing to build experience in the





formulation of scientifically based synthetic assessment of the state of the marine environment, aligned with the objectives of the PERSEUS project.

The school effectively managed to couple dissemination of knowledge with hands-on training and can be considered as yet another milestone in the PERSEUS-oriented drive towards the fostering of teams of researchers trained in high level scientific activities directly connecting and contributing to the adoption of policy measures based on the ecosystem-based approach, and aiming to support the adoption and implementation of the MFSD and GES. The school aimed to address the need for both EU and non-EU states to adopt a common framework and regional approach with regards to environmental policy development, common monitoring practices and the use of common assessment tools.

## 2.7 Participants' perspective

In order to gauge participants feedback on the conduction of the summer school and its didactic content, a short questionnaire based on six different criteria was compiled by all participants. The questionnaire ascribes a score to each and every criterion. A copy of the same questionnaire is being included in Appendix III, along with the overall scores registered by school participants.

In general, participants had a positive opinion about the PERSEUS summer school, allotting the highest scores to the "Conduction of lectures", "Lecture content", "Lecturer knowledge", "Organization/logistics" and "Overall success/outcome of course" fields.

Positive scores were given for all six criteria, whilst the "very bad" and "bad" scores were not chosen for any of the six criteria.

Course participants who consistently attended the course sessions were presented with certificates during a brief ceremony at the end of the course.



**Figure 2:** Presentation of certificates at the end of the course



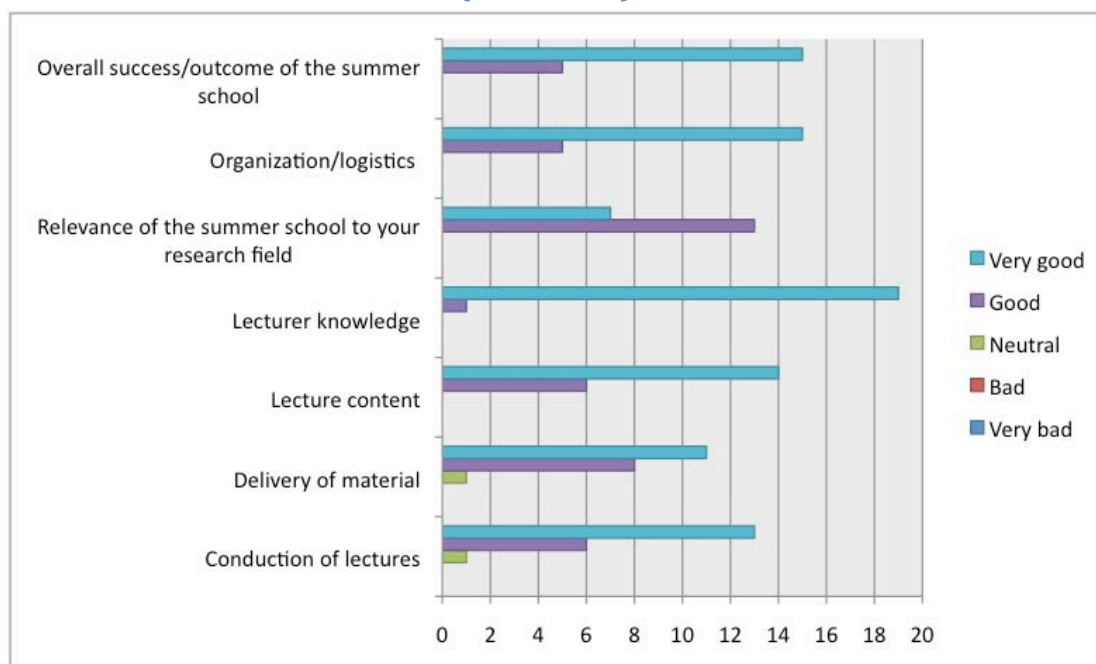
## 2.8 Facts & Numbers

### 2.8.1 Review Questionnaire

**Table 1:** Summary of the course participant’s feedback

	Very bad	Bad	Neutral	Good	Very good
Conduction of lectures			1	6	13
Delivery of material			1	8	11
Lecture content				6	14
Lecturer knowledge				1	19
Relevance of the summer school to your research field				13	7
Organization/logistics				5	15
Overall success/outcome of the summer school				5	15

### 2.8.2 Feedback of the students (20 in total)



**Figure 3:** Overall feedback by course descriptors



## 2.9. Course Programme

**03.06.2013**

### 9.00-9.30 Official opening:

- Local organisers - Dr. Simion NICOLAEV / NIMRD Director;
- Scientific course coordinator - Dr. Marco ZAVATARELLI (CONISMA);

**VIOLIN RAYKOV - Institute of Oceanology - BAS, Department of Marine Biology and Ecology, Varna, Bulgaria (Fishery related indices)**

### 9.30 -13.00

- Fishery related indices - Criteria and indicators;
- Size based indicators;
- Fussy framework - worldwide experience;

### 14.30-18.00

- Indicators calculations - choice, examples and exercises;
- Region specific applicability;
- Future proposals;

**4.06.2013**

**ANGEL BORJA - AZTI - Tecnalia - Marine Research Division, Spain (AMBI, M-AMBI index and MSFD assessment issues)**

### 9.00-13.00

- Integrative Ecological Status Assessment in Implementing the European Water Framework Directive and the Marine Strategy Framework Directive;
- Ecological indices based on macrobenthos: the case of AMBI and M-AMBI in assessing seafloor integrity status;

### 14.30-18.00

- Using AMBI and M-AMBI: computation, application and exercises;

**5.06.2013**

**CRISTINA MAZZIOTTI - ARPA Emilia-Romagna, Struttura Oceanografica Daphne, Italy (TRIX index)**

### 9.00-13.00

- Environmental indices: definition;
- Environmental indices in MSFD;



- Coastal eutrophication;
- Socio-economic aspects: eutrophication management;
- Northern Adriatic sea system: Emilia-Romagna coastal waters;
- N/P ratio;
- Trix Index: history;

#### **14.30-18.00**

- Trix Index: computation;
- Trix Index: application;
- Trix Index: exercises;

#### **6.06.2013**

##### **Excursion and official dinner**

#### **7.06.2013**

##### **GIOVANNI COPPINI - Euro-Mediterranean Centre for Climate Change (CMCC), Italy (Ocean Color Based Index)**

#### **9.00-13.00**

- Introduction: indices on Eutrophication;
- Ocean color based indicator;
- Ocean Color products: what is available and how to access to the data;
- Comparison of ocean color and in situ chl-a products;
- Specific case for the Mediterranean Sea;

#### **14.30-18.00**

- Ocean Color data access;
- Chl-a Climatology computation;
- Ocean color trend Index: computation;

##### ***Ceremony of presentation of Certificates to participants.***

- Coffee (10.30-11.00) and light lunches (13.00-14.30) on Monday 3/6, Tuesday 4/6, Wednesday 5/6 and Friday 7/6 were offered by the organizers;
- The excursion on Thursday 6/6 was planned on board of the Maritime Harbours Administration vessel around Constanta Harbour (9.00-12.00), followed by a visit at the Natural Sciences Museum Complex (13.00-15.00).
- An official dinner was offered by the organizers on Thursday 6/6 evening at the Villa Reyna at 19.00.



### 3. THE SOCIAL PROGRAM

Apart from increasing their scientific capacity during the lectures, we wanted to provide an opportunity for the young participants to meet, make new friends and exchange ideas. During their stay we hosted a number of social activities that surely facilitated social interaction among students, as well made the visit to Constanta a memorable one.

#### Thursday, 6th June: Social Excursion

The participants went on full day excursion, at the Constanta Maritime Harbours Administration, the Passenger Terminal and the Maritime Station.



Prior to boarding the vessel, the director of the Maritime Harbours Administration, Mr. Lucian Balut, presented a brief outline of the freight and passenger traffic in the Constanta Harbour, emphasizing that it is the largest harbour at the Black Sea, creating a gateway between Europe (through the Danube - Black Sea Canal) and Asia and Africa.

**Figure 4:** Constanta Maritime Station



**Figure 5:** The director of the Maritime Harbours Administration, Mr. Lucian Balut, outlining the activity in the Constanta Harbour



**Figure 6:** Boarding the “Anghel Saligny” vessel

Subsequently, the participants boarded the “Anghel Saligny” vessel and visited the entire Constanta Harbour Aquatory. The Constanta Harbour staff presented the various berths and terminals. As an outstanding event, the participants witnessed dolphin sightings very close to the vessel, inside the harbour aquatory. No less than 14 individuals were sighted gliding along the vessel or jumping at very close distance.



**Figure 7:** Images from the Constanta Harbour



**Figure 8:** Course participants and lecturers aboard the “Anghel Saligny” vessel



**Figure 9:** Dolphins sighted in the Constanta Harbour

Participants had lunch and continued with a visit to Natural Sciences Museum Complex in Constanta (Dolphinarium/Planetarium/Zoo/Nature Dino Park).



**Figure 10:** Visiting the Dolphinarium and Microdelta

**Thursday 6th June: Social Dinner**

An official school dinner was organized at the Villa Reyna Restaurant in Constanta, a spectacular location near the sea.







**Figure 11:** Participants enjoying their dinner by the Black Sea





## 4. PARTICIPANTS AND LECTURERS

### 4.1. Participants

Photo	Name	Affiliation	Specialization	E-mail/Telephone
	Elisabet ALBALADEJO- PEREZ	Institut de Diagnosi Ambiental i Estudis de l'Aigua (IDAEA- CSIC), Barcelona, Spain	Marine biology and biodiversity; Environmental toxicology	<a href="mailto:ealqam@cid.csic.es/">ealqam@cid.csic.es/</a> +34 665071390
	Andrii BAGAIEV	Marine Hydrophysical Institute of National Academy of Sciences of Ukraine, Sevastopol, Ukraine	Operational forecast of pollution transport in the Black Sea; Ecological and benthic state via marine indicators and indexes	<a href="mailto:bagaiev.andrii@gmail.com/">bagaiev.andrii@gmail.com/</a> +38 (066) 211-16-89
	Almudena CANOVAS- MOLINA	DiSTAV (Dipartimento di Scienze della Terra, dell'Ambiente e della Vita) Università degli Studi di Genova. Genova, Italy	Oceanography/ Environmental Science; benthic habitats	<a href="mailto:almucanovass@gmail.com/">almucanovass@gmail.com/</a> +393271848159
	Madalina CRISTEA	National Institute for Marine Research and Development "Grigore Antipa" Constanta, Romania	Ichthyology, marine living resources	<a href="mailto:mcristea@alpha.rmri.ro">mcristea@alpha.rmri.ro</a>








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	<p>Fabiola FANI</p>	<p>Department of Biology - University of Florence, Florence, Italy</p>	<p>Physiology and taxonomy of phytoplankton; assessment of the quality status of marine waters</p>	<p><a href="mailto:fabiola.fani@unifi.it">fabiola.fani@unifi.it/</a> +393491288352</p>
	<p>Adrian FILIMON</p>	<p>National Institute for Marine Research and Development "Grigore Antipa" Constanta, Romania</p>	<p>Marine ecology - benthos</p>	<p><a href="mailto:afilimon@alpha.rmri.ro">afilimon@alpha.rmri.ro</a></p>
	<p>Emanuela FIORI</p>	<p>Università di Bologna Laboratorio di Simulazione Numeriche del Clima e degli Ecosistemi Marini (SiNCEM) Ravenna, Italy</p>	<p>Aquatic toxicology, environmental indicators</p>	<p><a href="mailto:e.fiori@sincem.unibo.it">e.fiori@sincem.unibo.it/</a> +39-3493600156</p>
	<p>Seyma Merve KAYMAZ</p>	<p>Mugla Sitki Kocman University, Institute of Natural Science, Mugla, Turkey</p>	<p>Synoptic physical oceanography; Chlorophyll pigment analysis/HPLC; Marine ecology and biology; Water quality and water pollution</p>	<p><a href="mailto:seymakaymaz@yahoo.com">seymakaymaz@yahoo.com/</a> +90 555 344 0639</p>








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	<p>Khrystyna KHARKEVYCH</p>	<p>Benthos Ecology Department, Institute of Biology of the Southern Seas NAS of Sevastopol, Ukraine</p>	<p>Marine biodiversity and ecology, zoology of Tardigrades, structure of meiobenthos community</p>	<p><a href="mailto:kkristinna@gmail.com/">kkristinna@gmail.com/</a> +38 067 957 79 66</p>
	<p>Stefania KLAYN</p>	<p>Institute of Biodiversity and Ecosystem Research - Bulgarian Academy of Sciences (IBER-BAS), Sofia, Bulgaria</p>	<p>Marine ecology, soft-bottom macrozoobenthos, biological oceanography, coastal ecosystems</p>	<p><a href="mailto:stefaniaklayn@yahoo.com/">stefaniaklayn@yahoo.com/</a> +359898468683</p>
	<p>Jelena MANDIC</p>	<p>Institute of Oceanography and Fisheries, Split, Croatia</p>	<p>Chemical oceanography; Biogeochemical cycle of organic pollutants in marine environment</p>	<p><a href="mailto:mandic@izor.hr/">mandic@izor.hr/</a> +38599/7068814</p>
	<p>David MARCH- MORLA</p>	<p>Mediterranean Institute for Advanced Studies, Balearic Islands, Spain</p>	<p>GIS; Fisheries; Integrated Coastal Zone Management (ICZM); Marine Spatial Planning (MSP);</p>	<p><a href="mailto:david@imedea.uib-csic.es/">david@imedea.uib-csic.es/</a> +34 679323719</p>
	<p>Mihaela MURESAN</p>	<p>National Institute of Research and Development for Marine Geology and Geoecology - GeoEcoMar, Romania</p>	<p>Zooplankton and meiobenthos assessment</p>	<p><a href="mailto:mmuresan@geoecomar.ro">mmuresan@geoecomar.ro</a></p>





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	<p>Magda Ioana NENCIU</p>	<p>National Institute for Marine Research and Development “Grigore Antipa” Constanta, Romania</p>	<p>Dissemination &amp; technology transfer Marine biology, biochemistry, animal behaviour</p>	<p><a href="mailto:mnenciu@alpha.rmri.ro">mnenciu@alpha.rmri.ro</a></p>
	<p>Dragos NICULESCU</p>	<p>National Institute for Marine Research and Development “Grigore Antipa” Constanta, Romania</p>	<p>Physical oceanography; GIS &amp; Remote Sensing</p>	<p><a href="mailto:sady_2k@yahoo.com">sady_2k@yahoo.com</a></p>
	<p>Meral ÖZSÜER</p>	<p>Ege University, Institute of Science, Department of Marine Biology, Izmir, Turkey</p>	<p>Fishery engineering; chemical oceanography.</p>	<p><a href="mailto:m.ozsuer@gmail.com/">m.ozsuer@gmail.com/</a> (+90) 535 2875828</p>
	<p>Nadezda ROMANOVA</p>	<p>PP Shirshov Institute of Oceanology RAS, Moscow, Russia</p>	<p>Marine microbiology</p>	<p><a href="mailto:Romanova-Nadya@yandex.ru/">Romanova- Nadya@yandex.ru/</a> +7917 5446454</p>
	<p>Sergii SNIGIROV</p>	<p>Odessa National I.I. Mechnikov University, Regional Centre for Integrated Environmental Monitoring and Ecological Studies, Odessa, Ukraine</p>	<p>Ichthyology, hydrobiology</p>	<p><a href="mailto:snigirev@te.net.ua/">snigirev@te.net.ua/</a> +380953969537</p>



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	<p>Adrian TEACA</p>	<p>National Institute of Research and Development for Marine Geology and Geoecology - GeoEcoMar, Romania</p>	<p>Marine and freshwater biology and ecology</p>	<p><a href="mailto:adrianxteaca@yahoo.com">adrianxteaca@yahoo.com</a></p>
	<p>George TIGANOV</p>	<p>National Institute for Marine Research and Development "Grigore Antipa" Constanta, Romania</p>	<p>Fisheries, marine living resources</p>	<p><a href="mailto:gtiganov@alpha.rmri.ro">gtiganov@alpha.rmri.ro</a></p>



**Figure 12:** Local organizers (NIMRD): Simion Nicolaev (Director), Mariana Golumbeanu (Head of Dissemination and Technological Transfer Department), Andra Oros (Perseus Project responsible for Romania) and Tania Zaharia (Scientific Director)



## 4.2. Lecturers

**Name:** RAYKOV Violin



**Designation:** Research Scientist, lecturer

**Address:** Institute of Oceanology Bulgarian Academy of Sciences

Department of Marine Biology and Ecology, Varna, Bulgaria

**E-mail:** [vraykov@io-bas.bg](mailto:vraykov@io-bas.bg)

### Education:

He has graduated University of Plovdiv holding *MSc* degree in Biology. In the past he held research position at Institute of Fish Resources at Agricultural Academy. Currently he is a member of the Institute of Oceanology, BAS *Ph.D.* in hydrobiology. He has 45 per-reviewed papers in the area of fisheries and ecology of the Black Sea.

### Expertise:

He participated in many EU FP6 and 7 projects, BSERP UNDP project, CBC JOP, over 20 national and international projects and programmes. His scientific interest and work is focused on ichthyology, EC Data collection program, fish stock assessment, fisheries management and biodiversity, indicators under EU MSFP, cetacean research, invasive species, Natura 2000 etc. He is member of Advisory Group of Fisheries at Black Sea Commission, Vice Coordinator of WGBS at GFCM, National expert at FAO, member of WGBS at STECF, EC, Chair of B.EN.A. training center of "Marine science and technology" at IO-BAS.

**Name:****BORJA Angel****Designation:** Principal Researcher**Address:** AZTI-Tecnalia  
Marine Research Division  
20110 Pasaia (Spain)**Email:** [aborja@azti.es](mailto:aborja@azti.es)**Education:** He has a PhD on Marine Biology by the University of the Basque Country. In the past he held an associate professor position at the Basque Country University. Since 1985 is member of AZTI-Tecnalia, in which he was Head of the Department of Oceanography (1990-1999), and Head of the Marine Environment Area (1999-2004). He is a member of the Scientific Committee of the European Environment Agency. He has >135 per-reviewed papers in the area of marine environment.**Expertise:** His main research interests are: marine ecology, effects of human activities on marine ecosystems, monitoring of marine waters and recovery after impact, and development of methodologies to assess the status under European marine directives. He is author of >135 peer-review papers in marine environment and, after Science Watch from Thompson Reuters, is one of the most-cited authors in the field of ecology and environment. Is Editor and member of the Editorial Board of seven international journals: Journal of Sea Research, Marine Pollution Bulletin, Ecological Indicators, Ocean & Coastal Management, Continental Shelf Research, Open Journal of Marine Biology, and Revista de Investigación Marina. Referee in more than 60 international journals and project evaluation agencies, is member of different scientific associations. He has participated in more than 100 national, European and international projects, during past 31 years. Currently, he is the coordinator of the project DEVOTES (DEVELOPMENT OF innovative TOOLS for understanding marine biodiversity and assessing good Environmental Status), funded by the European Union under the 7th Framework Programme.



**Name:** MAZZIOTTI Cristina



**Designation:** Researcher

**Address:** ARPA Struttura Oceanografica Daphne  
V.le Vespucci, 2 47042 Cesenatico (FC) Italy

**Email:** [cmazziotti@arpa.emr.it](mailto:cmazziotti@arpa.emr.it)

**Education:** She has graduated University of Milan holding MSc degree in Biology. She has achieved three Masters: the first related to “Ecological foundations for the governance of the Adriatic coastal space: ecology, monitoring of transitional aquatic ecosystems”, the second referable to “Experimental approaches and models to study the intertidal rocky shores”, the third related to “The role of methane in marine environment”. She has participated to several EU Cross-border funded Projects in particular concerned with the monitoring activities in the coastal area and the eutrophication problems. She is author of about 10 internationally peer-reviewed papers.

**Expertise:** Her main scientific activity is in the field of marine phytoplankton analysis and identification, malacological studies, eutrophication management. She was designed as expert for phytoplankton EQB in marine coastal water in the Med-GIG group for the Marine Framework Directive implementation. She was also a Technician specialized for water’s depuration treatment and control.





**Name:** COPPINI Giovanni



**Designation:** Researcher

**Address:** Euro-Mediterranean Centre for Climate Change (CMCC)  
Via Augusto Imperatore 16, scala B, 1° Piano Lecce 73100

**Email:** [giovanni.coppini@cmcc.it](mailto:giovanni.coppini@cmcc.it)

**Education:** PhD, expert in Biological Oceanography, Marine Ecology, Physical Oceanography, Climatology, Meteorology, Marine and Coastal Engineering, Pollution, Research Support Services, Biological Oceanography, Marine Ecology, Physical Oceanography, Climatology, Meteorology, Marine and Coastal Engineering, Pollution, Research Support Services

**Expertise:** He has been the Director for project management of the EU project Mediterranean Forecasting System Toward Environmental Prediction funded by European Commission in FPV V - Energy, Environment and Sustainable Development. Moreover he has contributed to the project management of several international projects in the framework of the ADRICOSM partnership. Since 2004 is collaborating in the management of the Italian National Group of Operational Oceanography (8 institutes) and the Mediterranean Operational Oceanography network (more than 30 institutes). He is responsible of the group that in GNOO-INGV deals with application development. Coppini has skill in development of applications in the field of operational oceanography ranging from oil spill forecasting to climate and environmental indicators. This implies competency in modelling, scientific computation, and information management. Coppini has been using different scientific programming languages during his carrier.



## 5. DISSEMINATION

The Summer School, as well as the Perseus Project overall were well disseminated in the local mass media, which resulted in a good visibility of this activity throughout the entire week of lectures. A press release (see Appendix I) was drawn-up and distributed to the media and a poster of the event was elaborated (Appendix II).

The Official Opening was attended by several media representatives and the outcomes were video material broadcast on national and local television and newspaper articles published in printed newspapers and on-line editions.

The articles relating the Summer School are listed below and can be accessed following the links.

1. online edition of the local newspaper [www.ziarconstanta.ro](http://www.ziarconstanta.ro)  
 Title: SUMMER SCHOOL - ENVIRONMENT  
<http://www.ziarconstanta.ro/stiri/fapt-divers-36/scoala-de-vara-mediu-2931/>
  
2. local newspaper ([www.ziuaconstanta.ro](http://www.ziuaconstanta.ro)) online edition  
 Title: SUMMER SCHOOL ON ENVIRONMENTAL ISSUES IN GRIGORE ANTIPA INSTITUTE  
 CONSTANTA  
<http://www.ziuaconstanta.ro/diverse/stiri-calde/scoala-de-vara-pe-probleme-de-mediu-la-institutul-grigore-antipa-458449.html>
  
3. the video news was broadcast on NEPTUN TV (national) on the 19.00 NEWS on Monday, 3 June.  
 Title: SUMMER SCHOOL FOR MARINE RESEARCHERS IN CONSTANTA  
<http://www.reporterntv.ro/stire/scoala-de-vara-pentru-cercetatorii-marini-la-constanta>
  
4. local newspaper [www.lideruldeopinie.ro](http://www.lideruldeopinie.ro)  
<http://lideruldeopinie.ro/95239/in-cautare-de-solutii-pentru-mediul-marin#axzz2VPPVNymT>  
 SEEKING FOR SOLUTIONS FOR THE MARINE ENVIRONMENT
  
5. Perseus Summer School Closing Day article [www.telegrafonline.ro](http://www.telegrafonline.ro) (most read local newspaper of Constanta)  
 THE MARINE ENVIRONMENT, FOCUS OF RESEARCHERS WORLDWIDE  
[http://www.telegrafonline.ro/1370638800/articol/236768/mediul\\_marin\\_in\\_atentia\\_cercetatorilor\\_din\\_intreaga\\_lume.html](http://www.telegrafonline.ro/1370638800/articol/236768/mediul_marin_in_atentia_cercetatorilor_din_intreaga_lume.html)



Figure 13: Snapshots from the video material



Figure 14: Excerpts from the news articles



## APPENDIX I - PRESS RELEASE

### PRESS RELEASE

#### PERSEUS Summer School

#### **“The contribution of environmental indices in meeting the objectives and principles of the Marine Strategy Framework Directive”**

**3-7 June 2013**

#### **Constanta, Romania**

Under the auspices of the EU-FP7 Project PERSEUS (Policy oriented environmental research in the southern European Seas), National Institute for Marine Research and Development “Grigore Antipa” (NIMRD) Constanta will host an intensive summer course on environmental indicators **“The contribution of environmental indices in meeting the objectives and principles of the Marine Strategy Framework Directive”**. It will be held at the National Institute for Marine Research and Development “Grigore Antipa” (NIMRD) Constanta, from 3 to 7 June 2013. The planning of the school was made jointly with Consorzio Nazionale Interuniversitario per le Scienze del Mare (CoNISMa) and the University of Malta (UoM).

The EU-FP7 Project PERSEUS (Policy oriented environmental research in the southern European Seas) aims to develop scientific research activities contributing significantly to the implementation of the EU Marine Strategy Framework Directive (MSFD) and the achievement of the “Good Environmental Status” (GES) in the Mediterranean and Black Sea basins. Such challenging task require the formulation of scientifically sound synthetic information about the state of the environment for informing policy makers and provide elements for the formulation of efficient environmental policy and management plans.

In the relatively recent past a number of environmental indices formulating assessments on several aspects of the state of the marine environment have been formulated and proposed. PERSEUS, by organising an international summer school focusing on a selection of environmental indices ranging from lower to higher trophic levels, aims to contribute to build experience in the formulation of scientifically based synthetic assessment, by training a selected number of young scientist in selecting, computing and using such tools.

The school was open to young researchers and PhD students, with a scientific background in biological, physical and/or chemical oceanography, that are willing to expand their field of interest. After a rigorous selection, 21 applicants were accepted, from all around the Black Sea and Mediterranean (Bulgaria, Romania, Ukraine, Russia, Italy, Spain, Croatia, Turkey, Tunisia).

Given the strong PERSEUS focus on the scientific activities, problems and opportunities underlying the MSFD implementation and the achievement of “Good Environmental Status”, the themes of the summer school will target to promote the definition of high level scientific activities directly connecting and contributing to the adoption of policy measures based on the so called ecosystem-based approach, and aiming to support the adoption and implementation of the MSFD and GES. The school targets to address the need for both EU and non-EU states to adopt a common framework and regional approach with regards to environmental policy development, common monitoring practices and the use of common assessment tools.

The **official opening of the Perseus Summer School** is scheduled on **Monday, 3 June 2013**, at the headquarters of the National Institute for Marine Research and Development “Grigore Antipa” (300 Mamaia Blvd., Constanta, Romania), **at 9:00 a.m.**

#### **Contact persons:**

PhD Mariana Golumbeanu: [golumbeanum@gmail.com](mailto:golumbeanum@gmail.com)

PhD Andra Oros: [aoros@alpha.rmri.ro](mailto:aoros@alpha.rmri.ro)

PhD Student Magda Nenciu: [mnenciu@alpha.rmri.ro](mailto:mnenciu@alpha.rmri.ro)



APPENDIX II - POSTER



## PERSEUS SUMMER SCHOOL

### The contribution of environmental indices in meeting the objectives and principles of the Marine Strategy Framework Directive

3-7 June 2013  
Constanta, Romania

<p><b>PERSEUS</b></p> <p>The EU-FP7 Project PERSEUS (Policy oriented environmental research in the southern European Seas) aims to develop scientific research activities contributing significantly to the implementation of the EU Marine Strategy Framework Directive (MSFD) and the achievement of the "Good Environmental Status" (GES) in the Mediterranean and Black Sea basins. Such challenging task require the formulation of scientifically sound synthetic information about the state of the environment for informing policy makers and provide elements for the formulation of efficient environmental policy and management plans.</p>	<p><b>MSFD</b></p> <p>The Marine Strategy Framework Directive (MSFD, 2008/56/EC) was adopted in order to protect more effectively the marine environment across Europe. It aims to achieve good environmental status (GES) of the EU's marine waters by 2020 and to safeguard the resources based upon which marine-related economic and social activities depend. "Marine Strategies shall apply an ecosystem-based approach to the management of human activities, ensuring that the collective pressure of such activities is kept within levels compatible with the achievement of good environmental status (GES) and that the capacity of marine ecosystems to respond to human-induced changes is not compromised, while enabling the sustainable use of marine goods and services by present and future generations." (MSFD Art. 1.3).</p>	     
<p><b>TRAINING HIGHLIGHTS</b></p> <p>Given the strong PERSEUS focus on the scientific activities, problems and opportunities underlying the MSFD implementation and the achievement of "Good Environmental Status", the themes of the summer school will target to promote the definition of high level scientific activities directly connecting and contributing to the adoption of policy measures based on the so called ecosystem-based approach, and aiming to support the adoption and implementation of the MSFD and GES.</p> <p>The school targets to address the need for both EU and non-EU states to adopt a common framework and regional approach with regards to environmental policy development, common monitoring practices and the use of common assessment tools.</p>	<p><b>ENVIRONMENTAL INDICES</b></p> <p>In the relatively recent past a number of environmental indices formulating assessments on several aspects of the state of the marine environment have been formulated and proposed. PERSEUS, by organizing an international summer school focusing on a selection of environmental indices ranging from lower to higher trophic levels, aims to contribute to build experience in the formulation of scientifically based synthetic assessment, by training a selected number of young scientists in selecting, computing and using such tools.</p>	<p><b>Contact:</b>                  PhD Mariana Golumbeanu: <a href="mailto:golumbeanum@gmail.com">golumbeanum@gmail.com</a>                  PhD Andra Oros: <a href="mailto:aoros@alpha.rmri.ro">aoros@alpha.rmri.ro</a>                  PhD Student Magda Nendru: <a href="mailto:mnendru@alpha.rmri.ro">mnendru@alpha.rmri.ro</a></p>
<p><b>Hosted by:</b>                  National Institute for Marine Research and Development "Grigore Antipa"                  300 Mamaia Blvd., Constanta, Romania                  +40 241 543288                  +40 241 540870</p>		



## APPENDIX III - STUDENT FEEDBACK QUESTIONNAIRE

Dear participants,

We hope that your trip back home went well and that your experience in Constanta was a pleasant one.

In the attachment, you will find a very brief questionnaire, which we kindly ask you to fill-in, concerning the summer school you just attended. It will help us review our activity and draw-up the final report. It will only take a couple of minutes, so please send it back as soon as you can. Please note that any information given will be kept strictly confidential.

Best regards,

Local Organizing Committee

### CONSTANTA SUMMER SCHOOL REVIEW QUESTIONNAIRE

	Very bad	Bad	Neutral	Good	Very good
<b>Conduction of lectures</b>					
<b>Delivery of material</b>					
<b>Lecture content</b>					
<b>Lecturer knowledge</b>					
<b>Relevance of the summer school to your research field</b>					
<b>Organization/logistics</b>					
<b>Overall success/outcome of the summer school</b>					



## APPENDIX IV - ADDITIONAL COMMENTS FROM STUDENTS:

- Undoubtedly, the lectures, practicals as well as the lively dialogs have enriched my background, will stimulate my work and shape my individuality as an ecological modeller.
- Prof. Marco Zavatarelli organized a really important event that allowed all of us to experience up to date trends in the European scientific community that works on the Marine Strategy Framework Directive.
- I am thankful to Dr. Violin Raykov for my better taking in fishery related indices that are applied in the EU, which will be essential as far as our institute involved in international activity.
- Dr. Angel Borja broadened my understanding of the marine biotic indices, but for me it was also interesting to work with the software utilities that are developed by the European scientist to make the application of algorithms easier and the scientific advices more understandable for the policy makers.
- Dr. Cristina Mazziotti explained the trophic index extremely clear and I look forward to the possibility of implementing that knowledge in my research.
- Dr. Giovanni Coppini shaped my view on a systematical, complex approach to the ecosystem modelling and ecosystem state assessment using the model data. It will be helpful in further development of my own model and others ecological applications.
- Finally, I wish to thank the local organizers: Dr. Simion Nicolaev, Dr. Tania Zaharia and Dr. Mariana Golumbeanu for the highest scientific level, perfect organization and warm atmosphere.

