

**Ecosystem Approach to Fisheries in the Mediterranean
and Black Seas. SCIENTIFIC BASES**

Varna (Bulgaria), 3-7 February 2014

PROGRAMME

0. Opening and CREAM project presentation (1.5 hours) (J. Lleonart)
1. Knowledge needs for EAF (1.5 hours)
 - 1.1. EAF principles and concepts (0.5 h) (J. Lleonart)
 - 1.2. Stakeholders participation to fisheries management according to EAF (1 h) (F. Fiorentino)
2. Sustainability of target species (1 hour) (J. Lleonart)
 - 2.1. The role of classical stock assessment in the framework of EAF
 - 2.2. From single to multispecies VPA
3. Ecological aspects (11 hours)
 - 3.1. Ecosystem level impacts (1 h) (K. Stergiou)
 - 3.1.1. Trophic web
 - 3.1.2. Community structure
 - 3.1.3. Habitat
 - 3.1.4. Species diversity
 - 3.1.5. Productivity
 - 3.2. Ecosystem assessment
 - 3.2.1. Ecosystem models (2 h) (F. Maynou)
 - 3.2.1.1. Models: types, characteristics, potential and limitations
 - 3.2.1.2. Data-poor approaches (size spectra, biomass trophic spectra)
 - 3.2.1.3. Balanced harvesting
 - 3.2.2. The spatial dimension of EAF
 - 3.2.2.1. Spatial dimension of EAF - GIS, VMS and satellite images (1 h) (F. Carocci)
 - 3.2.2.2. Modeling the marine space using GIS (1 h) (F. Carocci)
 - 3.2.2.3. Models for MPA (ECOSPACE) (1 h) (G. Daskalov)
 - 3.2.2.4. Optimization of reserve design (1 h) (K. Stergiou)
 - 3.2.3. Productivity susceptibility assessment (PSA) (1 h) (F. Maynou)
 - 3.2.4. Decision support systems
 - 3.2.4.1. An Introduction to Bayesian Statistics (1 h) (M.G. Pennino)
 - 3.2.4.2. Multicriteria decision analysis and risk assessment (2 h) (K. Tenekedjiev)
4. Social and economic aspects (3 hours)
 - 4.1. Cost and benefits analysis (1 h) (C. Chaboud)
 - 4.2. Economic valuation of marine ecosystems services (1 h) (C. Chaboud)
 - 4.3. Institutional and stakeholders analysis (1 h) (R. Franquesa)
5. New model developments: integrated end-to-end models (3 hours)
 - 5.1. Trophic cascades and regime shifts in the Black Sea (1 h) (G. Daskalov)
 - 5.2. Assessing the spatial distribution of species using Bayesian hierarchical models (2 h) (M.G. Pennino)
6. Indicators, targets, reference points (4 hours)
 - 6.1. Type: ecological, economic and social (1 h) (J. Vigneau)
 - 6.2. Development of indicators: methodological aspects (1 h) (J. Vigneau)
 - 6.3. Implementation of indicators: data needs, use, potentials and limitations. Indicators in the EU Marine Strategy Framework Directive (MSFD)
 - 6.3.1. Ecological indicators (1 h) (J. Vigneau)
 - 6.3.2. Economic indicators (1 h) (R. Franquesa)

7. Low Impact and Fuel Efficient (LIFE) fishing (2 h) (P. Suuronen)
 - 7.1. Advances in gear technology for species and size selectivity, and for reduction of the environmental impact
 - 7.2. Energy saving schemes
8. Practical work (6 hours)
 - 8.1. Model demonstrations
 - 8.1.1. SMART: Spatial MAnagement of demersal Resources for Trawl fisheries (1 h) (F. Fiorentino)
 - 8.1.2. ECOPATH with ECOSIM application in the Adriatic and in the Black Sea (2 h) (G. Daskalov)
 - 8.2. Computation and use of ecological indicators (3 h) (J. Vigneau, F. Maynou)
 - 8.2.1. Fishing in balance indicators
 - 8.2.2. Mean trophic level
 - 8.2.3. Family of the MSFD Descriptor 3 size indicators
9. Final remarks and discussion (1 hour) (J. Lleonart, V. Raykov, G. Daskalov, J. Vigneau, F. Maynou)

**CREAM Project Course 1 - ECOSYSTEM APPROACH TO FISHERIES IN THE MEDITERRANEAN AND BLACK SEAS. SCIENTIFIC BASES,
Varna (Bulgaria), 3-7 February 2014**

Hour	Monday 3	Tuesday 4	Wednesday 5	Thursday 6	Friday 7
9:00-10:00	0. Opening and CREAM project presentation J. Lleonart	3.2.2.1. Spatial dimension of EAF - GIS, VMS and satellite images F. Carocci	3.2.4.2. Multicriteria decision analysis and risk assessment N. Nikolova	8.1.2. Model demonstration: ECOPATH with ECOSIM application in the Black Sea G. Daskalov	7. Low Impact and Fuel Efficient (LIFE) fishing P. Suuronen
10:00-11:00		3.2.2.2. Modeling the marine space using GIS F. Carocci			
Coffee break					
11:30-12:30	2. Sustainability of target species J. Lleonart	3.2.2.3. Models for MPA (ECOSPACE) G. Daskalov	4.1. Cost and benefits analysis 4.2. Economic valuation of marine ecosystems services C. Chaboud	5.2. Assessing the spatial distribution of species using Bayesian hierarchical models M.G. Pennino	6.3.1. Implementation of ecological indicators J. Vigneau
12:30-13:30	1.2. Stakeholders participation to fisheries management according to EAF - F. Fiorentino	3.2.2.4. Optimization of reserve design K. Stergiou			8.2. Computation and use of ecological indicators J. Vigneau, F. Maynou
Lunch break					
15:00-16:00	3.1. Ecosystem level impacts K. Stergiou	3.2.3. Productivity susceptibility assessment (PSA) - F. Maynou	4.3. Institutional and stakeholders analysis R. Franquesa	Indicators, targets, reference points 6.1. Type: ecological, economic and social J. Vigneau	8.2. Computation and use of ecological indicators J. Vigneau, F. Maynou
16:00-17:00	3.2.1. Ecosystem models F. Maynou	3.2.4.1. An Introduction to Bayesian Statistic - M.G. Pennino	6.3.2. Implementation of economic indicators R. Franquesa	6.2. Development of indicators: methodological aspects J. Vigneau	9. Final remarks and discussion J. Lleonart, V. Raykov, G. Daskalov, J. Vigneau, F. Maynou
Coffee break					
17:30-18:30	3.2.1. Ecosystem models F. Maynou	8.1.1. Spatial Management of demersal Resources for Trawl fisheries - F. Fiorentino	5.1. Trophic cascades and regime shifts in the Black Sea G. Daskalov	8.2. Computation and use of ecological indicators J. Vigneau, F. Maynou	