



BLACK SEA4FISH

PRESENTATION SERIES

The BlackSea4Fish project would like to propose, within the scope of its [Output 5 – aimed at promoting regional cooperation and best practices](#), a series of five online technical presentations on fishery-related topics of specific interest to the Black Sea. The aim of these presentations will be to provide regional experts with an opportunity to advance their knowledge and exchange ideas on specific technical issues related to advice and management of resources in the Black Sea.

6 July 2020, 9.00 CEST | [State-space assessment models \(SAM\)](#)

Presenter: Niels HINTZEN

In the past few years a shift is being made within the Working Group on the Black Sea (WGBS) towards exploring more complex age-based models for the assessment of the status of Black Sea priority stocks, starting from turbot. The selected model for the assessment of turbot in the past six or so years has been the SAM state space assessment model, an extension to full parametric statistical models giving very flexible models with low numbers of estimated parameters. A significant amount of training has been provided to Black Sea experts, through the BlackSea4Fish project “training-of-the-trainers” capacity building efforts, on the application of the SAM model for turbot and, more recently for sprat. The objective of this presentation will be to start widening knowledge at a Black Sea basin level by providing a recap on the theory of SAM models and showcasing a number of Black Sea-specific applications.

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| [Presenter](#)



Niels HINTZEN is senior scientist on fisheries advice at Wageningen Marine Research (WMR) in the Netherlands. He translates results from data analyses to mathematical models, performs statistical analyses and use sthis to simulate future management scenarios. He performs assessments of herring stocks in Europe and horse mackerel in the South Pacific. Mr. Hintzen also develops software and use this to analyse GPS data from fishing vessels. In the Black Sea he has been involved in the provision of advice for the turbot benchmark and has hosted a number of Black Sea scientists at WMR for training on SAM.



21 July 2020, 9.00 CEST | **Black Sea Rapa whelk survey protocol – Presenters: Bohdan HULAK, Nuri BAŞUSTA and Murat DAĞTEKIN**

Rapa whelk is a rising commercial asset of Black Sea fishery. After finding a market in the Middle East, its revenue gradually increased. In many Black Sea countries, it has provided a significant part of the income obtained from Fisheries. As a result, the use of this resource within the scope of sustainable principles has gained importance, and so that GFCM has rolled up its sleeves and launched a research program targeting a regional management plan for Rapa whelk fishery in the Black Sea. One of the critical pillars of this research is the harmonized scientific surveys at sea to be conducted simultaneously throughout the Black Sea. This presentation regards two of the main items of biological information that will be collected by these surveys: age and sex. Thus, three experts from the Black Sea will discuss this issue in detail and will present practical solutions.

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| **Presenters**



Bohdan HULAK is currently working as a researcher at the Odessa Center YugNIRO since 2017 and doing his Ph.D. at Odessa I.I. Mechnikov National University. His research interests include biology and ecology of fish and invertebrates in the Black Sea, such as turbot, sprat, anchovy, Atherina, and Rapa whelk. He is also interested in the environmental aspects of commercial fishing. He has repeatedly participated in scientific projects, international and national maritime expeditions as well as in GFCM meetings. He has several scientific publications. Mr. Hulak will present a method for the determination of the age of a Rapa whelk based on the counting surface spawning marks.



Nuri BAŞUSTA (Professor) currently works as a professor at the Faculty of Fisheries, Firat University, where he is head of the marine biology section since 2007. He studied as a guest researcher in the Department of Marine Science, University of New England, Maine, USA. He is an expert on the biology and ecology of the deep sea and coastal fishes, and has expertise in age determination. His main research interests are in the Turkish Seas. He is the author of several books and many scientific articles.

Prof. Başusta will present how the sensory gravity receptors (statoliths), which help balancing and orientation, are used for accurate age determination.



Murat DAĞTEKIN (Ph.D.) is researcher in the Central Fisheries Research Institute (SUMAE). He is working on commercial species (whiting, red mullet, Rapa whelk, baby clam, turbot, anchovy, and horse mackerel) management of fisheries (fish biology, stock assessment, and socio-economy) in the Black Sea. Since 2005, he worked as a researcher in 18 national research projects, in 5 of them as a leader. He is the WP leader in the Era-Net COFASP- GOFORIT project. He is author and co-author

of more than 50 original scientific documents. Dr. Dağtekin, will present a field technique to determine the gender of the species.



September 2020, date and time TBD | **Data limited stock assessment models –**
Presenters: Nazli DEMIREL and Yevhen LEONCHYK

According to official statistics (FAO, 2018), over 1 million tonnes of catches of approximately 400 species of fish and invertebrates are being exploited by numerous fishing gear types and methods in the Mediterranean and Black Sea. Most landed biomass is derived from data-poor fisheries, i.e., stocks that have not been properly assessed or tested. Performing stock assessments is not an easy task at the best of times and less so when the only information being regularly recorded is scarce e.g. trends in catches and/or some biological information only. This lack of information may hinder the determination of stock status and consequently effective management. Data-poor fisheries require approaches to stock assessment that deviate from classical age-based models, by incorporating novel techniques designed to produce fisheries reference points when biological data are limited and catch/biomass time series are short or incomplete. This presentation will deal with such approaches by introducing recent advances in data-poor stock assessment methods. Thus, different methods, e.g. the Length-based Bayesian estimator (LBB) method, will be described making use of examples implemented for Black Sea stocks.

| **Presenters**



Nazli DEMIREL has more than fifteen years of practical experience as a researcher in Marine Biology Department at the Institute of Marine Sciences and Management, Istanbul University. Recently her research employs ecosystem approaches to elucidate environmental status by indicators and reference points. She is particularly interested in data-limited fisheries and in performing stock assessment towards the best management practices on fish populations with insufficient data.



Yevhen LEONCHYK (Ph.D.) has been working as an associate professor at the Odessa I.I. Mechnikov National University since 2002. His research interest is mathematical modeling of distributed economic systems and computational modeling for complex systems. He obtained his Ph.D. in Physics and Mathematics with the thesis work on oscillation of functions and difference-differential properties of singular integrals. In addition, he is a senior researcher at Odessa Center of Southern Research Institute of Marine Fisheries and Oceanography (YugNIRO) assessing commercial fish stocks with data-limited approaches over the five last years and is actively involved in work of Subregional Group for Black Sea Stock Assessment (GFCM).



September 2020, date and time TBD | **Biological Reference Points – Presenters: Niels HINTZEN and others TBC**

The ultimate target of fisheries management is to maximize the profit gained from renewable marine living resources, which necessitates keeping the stocks at a point where they have the highest potential to renew themselves. Biological Reference Points (BRP) are indicators that show where that critical point that delineates the boundary between over- and under-exploitation, can be. With that regard, BRPs form the basis of scientific advice that guides fisheries management. These reference points are determined by models utilizing the internal dynamics of the stock displaying the meaningful relationship between spawning stock and their recruits, or else, they are approximated on the precautionary basis in fishes that have high fecundity and respond quickly to environmental variables. In this presentation, the concept of BRP and its theoretical basis will be discussed, and different approaches used to estimate the BRP of the some of the most important commercial species in the Black Sea will be presented by regional experts.

| Presenters



Niels HINTZEN is senior scientist on fisheries advice at Wageningen Marine Research (WMR) in the Netherlands. He translates results from data analyses to mathematical models, performs statistical analyses and use sthis to simulate future management scenarios. He performs assessments of herring stocks in Europe and horse mackerel in the South Pacific. Mr. Hintzen also develops software and use this to analyse GPS data from fishing vessels. In the Black Sea he has been involved in the provision of advice for the turbot benchmark and has hosted a number of Black Sea scientists at WMR for training on SAM.

October 2020, date and time TBD | **Multispecies modelling of Black Sea resources using mass-balance models (Ecopath with Ecosim, EwE) – Presenters: Ekin AKOGLU and Yoana GEORGIEVA**

Species in aquatic ecosystems do not exist in isolation, but are connected via complex trophodynamic relationships. During the last few WGBS, the participants underlined the importance of species interactions as well as of evaluating regional good environmental status using multispecies criteria in addition to single-species ones. In this respect, they provided a number of examples including the alternating yearly fluctuations of Black Sea anchovy and European sprat as well as the feeding interaction (competition) between juvenile turbot and rapa whelk. Hence, the possibility of considering the use of multispecies models for the assessment of certain species was raised.

In this online event, the basic concepts of the trophodynamic ecosystem modeling (Ecopath and Ecosim) will be presented as well as the main outcomes of EwE models constructed for the Black Sea ecosystem, including time-dynamic simulations when changing the fishing mortality (F). In addition, a case study toward producing quantitative scientific advice on the application of the EU Common Fisheries Policy (CFP) in the Black Sea will be presented. For this purpose a coupled, basin-scale circulation-biogeochemical and food web model will be used to test near-future changes that may be observed in the Black Sea ecosystem

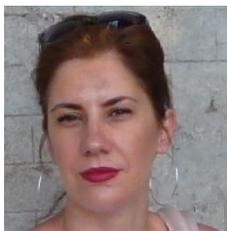


under the influence of contemporary fisheries exploitation conditions. The studies will present the predicted stock sizes, FMSY values and MSY estimates of the commercially important fish species in the Black Sea. During the presentations the need for using multi-species models, when analyzing the status of the marine ecosystems and their fishery resources will be discussed.

| Presenters



Ekin AKOGLU is currently employed as an assistant professor in the Middle East Technical University, Graduate School of Marine Sciences. He has a background in fisheries science and obtained his M.Sc. and Ph.D. degrees in Marine Biology and Fisheries. He has an expertise in ecological modelling with emphasis on trophodynamic and end-to-end ecosystem models. He carries out research on the effects of climate change, trophic competition and fisheries on fish stocks in particular and marine ecosystems in general. He took part as a researcher in many EC FP7 funded projects and is the author and co-author of 15 scientific publications.



Yoana GEORGIEVA is a researcher at the Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences. She studied Ecology and Environmental protection (B.Sc. and M.Sc.) and has a Ph.D. in fish trophic ecology, ecosystem modeling and the ecosystem approach to fisheries management. She has participated in more than 10 national and international research projects and her activities were focused on biological monitoring (population parameters, stomach content analysis) of commercial fish species, and ecological monitoring (bio-chemical and physical parameters) of coastal marine waters. She is an author and co-author of 11 scientific publications. In the last two years, she also works as a consultant for the BlackSea4Fish project.

The **BlackSea4Fish** project contributes to the sustainable management of Black Sea fisheries, by providing scientific and technical support to the work of the GFCM in the region. It involves Bulgaria, Georgia, Romania, the Russian Federation, Turkey, Ukraine and the European Union, supporting them in fulfilling their objectives with regards to Black Sea fisheries, organizing activities in line with agreed workplans and in turn benefiting from their technical and, as appropriate, financial/in-kind contributions.