



# BLACK SEA<sup>4</sup>FISH

## 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 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.

### 2021 PRESENTATION SERIES

30 November 2021, 13.00 (Rome time) | [Monitoring discards in Mediterranean and Black Sea fisheries](#)

Discarding is a global issue. The most recent FAO estimate of 20 million tons, if correct, is however about 25 percent of the reported annual yield from marine fisheries. Usually discarding constitutes a reduction of future harvesting opportunities and it might have negative consequences for the environment and ecosystem. Discards may represent a major source of uncertainty about the real fishing mortality rates exerted on stocks. The majority of specimens caught, and then discarded, are small and small specimens are sexually immature. That means reduction of future spawning stock biomass, which is at the moment one of the key parameters in fishery management. Catching small fish reduces the growth potential of the stock and thus reduces the potential yield from a fishery with obvious economic consequences. Adopting effective measures to reduce discards represent essential steps towards minimizing the impacts of fisheries on vulnerable species, discards, and more generally on marine ecosystems, as well as towards ensuring a sustainable fishery sector. Notwithstanding, studies on discards cover only a small proportion of the total fishing activity in the Mediterranean and Black Sea, indicating a shortage of information. The GFCM publication “[Monitoring discards in Mediterranean and Black Sea fisheries: Methodology for data collection](#)” aims to ensure minimum common standards for the collection of discards data and allows for repeatability and comparisons among fisheries across the region.

[Presentation](#)

[Brief record of the Q&A](#)

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## I Presenter

**Paolo CARPENTIERI** holds a PhD in Animal Biology is an expert in fisheries biology, in particular in the study ecology of demersal communities and population dynamics of Mediterranean fisheries. Since 2013, under the general supervision of the Executive Secretary of the General Fisheries Commission for the Mediterranean (GFCM) of the Food and Agriculture Organization of the United Nations (FAO), he has contributed to the development of the GFCM Data Collection Reference Framework (DCRF) with the objective to strengthen GFCM processes for the collection and submission of data on fisheries. During this period, he has also developed a common methodology and a roadmap towards the implementation of discards monitoring programmes, in several Mediterranean and Black Sea countries and in selected fleets segments, in line with the objectives of the “GFCM Mid-term strategy”. Further, he is coordinating the work of GFCM on incidental catch of vulnerable species, including with relevant partner organizations in the frame of the project with the MAVA Foundation, towards the implementation of monitoring programmes and the development of mitigation measures and awareness campaign on bycatch of vulnerable species. He is also supporting the GFCM Secretariat in designing operational protocols (e.g. sampling methodologies, areas, vessels, treatment of the catches, biological sampling etc.) for a correct implementation of both scientific demersal and acoustic-pelagic surveys in all the Mediterranean and Black Sea.

## 7 December 2021, 13.00 (Rome time) | **Size selectivity in towed fishing gears**

To reduce capture of juveniles in commercial fisheries, there have been extensive research efforts to improve the size selectivity of towed fishing gears in past 60 years. Some of these studies resulted in modification of technical measures in various fisheries. Selectivity experiments are also an important part of fish stock estimation studies. With the information on the size selectivity of a particular gear, the population length distribution of a fishery can be estimated from commercial catch data, and from these, age distribution can be inferred. Furthermore, selectivity information of the sampling gear data which is collected during research vessel surveys is an important contribution to the correction of potential bias. Finally, it is important in fish stock assessment to be able to quantify the expected changes resulting from the implementation of a new gear or mesh size. This requires the knowledge of the selectivity characteristics. In this seminar, basic principles of the towed gear selectivity experiments, with some sample results from the Eastern Mediterranean and the Black Sea will be presented.

### [Presentation](#)

### [Brief record of the Q&A](#)

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## I Presenter

**Hüseyin ÖZBILGIN** joined GFCM as coordinator of the BlackSea4Fish project in February 2021. He is based in the GFCM technical unit of Burgas-Bulgaria. He holds a PhD in Fishing Technology and Fish Behaviour. Prior to joining FAO-GFCM, Mr Ozbilgin worked as Professor at Ege and Mersin



Universities. His main research interests are fish behaviour in relation to fishing operations and bycatch reduction. He has been involved in more than 50 peer-reviewed research articles on these subjects. He was the director of Mersin University, Maritime College (2010-2013), and head of Fish Capture Department of Fisheries Faculty (2008-2021). He acted as scientific advisor to WWF-Turkey for SSF Co-management Project, and Turkish focal point to GFCM Discard Monitoring Programme.

15 December 2021, 13.00 (Rome time) | **Bycatch reduction in towed fishing gears**

By-catch of vulnerable and protected species (marine mammals, seabirds, sharks and rays, and sea turtles) has become increasingly important in recent years. Minimizing the impacts of bycatch is important for the health of ecosystem, oceans, seas and, in particular, fisheries management. For the last two decades, efforts have been made to develop effective methods to remove vulnerable and protected species from fishing gear, to exclude them or to reduce their catch. Mostly these efforts focus on modifying parts of the trawl net as well as covering different modifications such as additions to the gear to create a physical barrier to reduce by-catch. This presentation focuses on the consideration of mitigation measures and methods that have been developed and tested demersal trawl fishery in order to reduce the bycatch of charismatic species. In addition, information will be provided on mitigation measures tested in north-east Mediterranean.

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[Brief record of the Q&A](#)

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#### I **Presenter**

**Gökhan GÖKÇE** (PhD) is enrolled in Çukurova University, Fisheries Faculty in Turkey and he is the head of the fish capture and processing technology department. His main research subjects are bycatch and discard problems in fisheries besides species and size selectivity, artificial reef and lagoon fisheries are of interest. He has contributed to many national and international projects such as bycatch mitigation practises in the demersal trawl fishery (TED and lead line modifications), trawl codend selectivity (square and diamond mesh codends), fish behaviour, artificial reef deployment to support artisanal fisheries and develop machine learning-artificial intelligence for better management and sustainability of trawl and purse seine fishery. He also works as the national focal point of the projects to reduce bycatch of vulnerable species and discard in demersal trawl fisheries in Turkey. In addition to his scientific background, he has worked as a crew member in the small scale, trawl and purse seine fisheries.



## 2020 PRESENTATION SERIES

6 July 2020, 9.00 (Rome time) | **State-space assessment models (SAM)**

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 (Rome time) | **Black Sea Rapa whelk survey protocol**

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.

[Presentation, Bohdan HULAK](#)



[Presentation, Nuri BAŞUSTA](#)

[Presentation, Murat DAĞTEKIN](#)

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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.

12 November 2020, 9.30 (Rome time) | **Multispecies modeling of Black Sea resources using mass-balance models (Ecopath with Ecosim, Ewe)**





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.

[Presentation, Ekin AKOGLU](#)

[Presentation, Yoana GEORGIEVA](#)

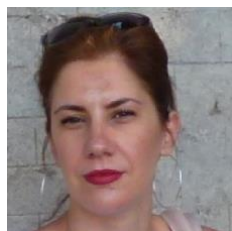
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| [Presenters](#)



**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 (biochemical 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.

## 8 December 2020, 9.30 (Rome time) | **Biological Reference Points**

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.

### [Presentation](#)

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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.

## 22 December 2020, 9.30 (Rome time) | **Data limited stock assessment models**

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), Spawning Potential Ratio (LBSPR) and CMSY method, will be described making use of examples implemented for Black Sea stocks.

[Presentation, Nazli DEMIREL](#)

[Presentation, Guiseppe SCARCELLA](#)

[Presentation, Yevhen LEONCHYK](#)

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#### | 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 and she has a Ph.D. in marine biology. Recently her research employs ecosystem approaches to elucidate environmental status by indicators and reference points. Dr. Demirel is particularly interested in data-limited fisheries and in performing stock assessment towards the best management practices on fish populations with insufficient data. She is the author and co-author of 25 scientific publications including several data-limited stock methodologies and their implementations.



**Guiseppe SCARCELLA** is an experienced fishery scientist and population analyst and modeller, with wide knowledge and experience in the assessment of demersal stocks. Since 2018 Dr. Scarcella is in the permanent staff of CNR-IRBIM as researcher. He is also actively participating in the scientific advice process of FAO GFCM in the Mediterranean Sea and he was moderator of the GFCM-SAC Sub-regional Committee for Eastern Mediterranean. He is author of more than 50 scientific paper peer reviewed journals and more than 150 national, and international technical reports, most of them focused on the evolution of fish assemblages in artificial habitats, stock assessment of demersal species and evaluation of fisheries management plans.

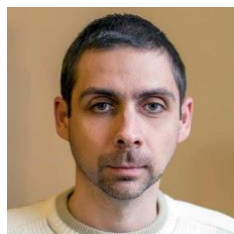




Food and Agriculture  
Organization of the  
United Nations



General Fisheries Commission  
for the Mediterranean  
Commission générale des pêches  
pour la Méditerranée



**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).

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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.