



TRIATLAS



BLUE ACTION

## Forecasting fish distribution and abundance in the Atlantic Ocean: the challenge of balancing exploitation and sustainability



**3 December 2020, 14:30 – 16:30 CET**

**Online Event**

Hosted by MEP Isabel Carvalhais and MEP Pierre Karleskind

Speakers:

- **MEP Isabel Carvalhais**
- **Nikolaos Zampoukas**, Marine Resources Unit, DG Research and Innovation, European Commission
- **Jörn Schmidt**, Chair of the Science Committee, ICES
- **Femke de Jong**, Researcher, NIOZ
- **Mark Payne**, Researcher and Associate Professor, DTU Aqua
- **Laura Meller**, Campaigner and Ocean Specialist, Greenpeace
- **Manuel Barange**, Director, Fisheries and Aquaculture Policy and Resources Division, FAO
- **Daniel Voces**, Managing Director, Europêche
- **MEP Grace O'Sullivan**
- **Sandra Ketelhake**, Science Policy Officer, KDM
- **Noel Keenlyside**, Professor at Bjerknes Centre for Climate Research, University of Bergen
- **MEP Pierre Karleskind**

## Welcome Remarks

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*MEP Isabel Carvalhais*

*“Resource management decision-making should always be based on the best available scientific knowledge; therefore, accurate data collection is essential.”*

MEP Dr. Carvalhais began her intervention by highlighting the importance of **investing in scientific knowledge** to reach more **efficient technological and political decisions** in the sustainable management of Europe’s environment and economic activities; particularly, activities more reliant on wild living resources, such as the fishing industry which **will benefit from science-based decision-making**. Dr. Carvalhais further stressed that the European Union should promote **data collection** to achieve more innovative solutions. In this regard, Dr. Carvalhais welcomed the important steps taken by Member States to collect data and contribute collectively to a better understanding of fishing and marine resource patterns in the EU. It is important to work towards building back healthy ecosystems by rendering **economic activities more sustainable**, especially since these often rely on the exploitation of natural resources, such as wild fish. Dr. Carvalhais lastly called for a **better balance between the preservation of marine resources and fishing activities**, by implementing more sustainable fishing manners. This would ensure the survival of marine resources but also of fishing communities.

## Keynote address

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*Nikolaos Zampoukas, Marine Resources Unit, DG Research and Innovation, European Commission*

*“We are aiming to bridge the knowledge gap between European citizens and our oceans by making information on Europe’s fisheries and marine ecosystems more accessible.”*

In his address, Dr. Nikolaos Zampoukas first laid out the European Commission’s work on **promoting more sustainable fishing methods** in the EU. Particularly aimed at **eliminating discards** in European fisheries, the European Commission’s strategy focuses on three key issues: **reducing unwanted catches, better management of unavoidable unwanted catches** and **studying the effects of discard on marine ecosystems**. Dr. Zampoukas introduced the Commission’s ClimeFish and CERES initiatives which aim to

**analyze the effects of climate change on fisheries and aquaculture.** By using available data, developing models and testing new scenarios, these initiatives could **identify potential shifts in the European fish stock and new opportunities for the aquaculture industry.** Additionally, Dr. Zampoukas highlighted some other key projects established such as Blue-Action, TRIATLAS or Mission Atlantic, which contributed to **new fisheries' technologies and initiatives** (SmartFish, Symbiosis). The focus today is to make **data collecting and monitoring of fishery less destructive and less costly**, by investing in and developing technologies such as machine learning, Artificial Intelligence or acoustics, as Dr. Zampoukas emphasized.

## Panel Discussion

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*Jörn Schmidt, Chair of the Science Committee, ICES*

*“Ecosystem-based management optimizes benefits among diverse societal goals by always considering and inter-connecting the three pillars of sustainability: Nature, Society and Economics.”*

Dr. Jörn Schmidt addressed in his presentation the **societal relevance of ecosystem-based management for fisheries policies.** Ecosystem-based management, Dr. Schmidt explained, is based on the three pillars of sustainability, namely **Nature, Society and Economics**, and always considers the dependence and inter-connection of the three. Accordingly, by relying on **ecosystem-based management** one can come up with multi-layered sustainable solutions, notably taking into consideration **collective pressures, human activities, regionalization, trade-offs or the stewardship for future generations.** In its essence, the ecosystem-based approach aims to find a **balance between human activities and environmental stewardship** by trying to untangle the complexity of the climate and ocean system and the ecosystems within. In this regard, ICES works on understanding the biology and physiology of living species, the system they live in (ecology), as well as the **effects of both the environment and human activities on these species.** Dr. Schmidt also referred to the **global drivers**, such as population growth, technological development and more importantly climate change, which can affect these ecosystems and thus **challenge sciences and governance.** The **ability to respond to climate change is key for resilient fishery industries and their depending communities**, Dr. Schmidt emphasized concludingly.

*Femke de Jong, Researcher, Royal Netherlands Institute of Sea Research (NIOZ)*

*“We need fishery and marine resources data to be easily accessible and publicly available to allow policy-makers to make the most accurate predictions and be able to make informed decisions.”*

Dr. Femke de Jong's presentation focused on **integrated ocean observations and networks as tools to better understand our oceans.** Dr. de Jong pointed out that **ocean circulation patterns** are one of the **main**

**drivers of change in ocean properties and ecosystems** and therefore have a significant **influence on local climate and fisheries** (by for example redistributing heat from the equatorial region to the poles). Ocean circulations and properties can themselves also be subject to **variabilities** in time, temperature and space, such as **climate change trends**, which in turn can affect the submarine ecosystems. To deal with these types of variabilities Dr. de Jong suggested **broadening the spectrum of observations to acquire more precise data on ocean circulation variabilities**. One such initiative is the **Argo program**, which develops satellites connected **autonomous floats** which dive down the ocean to **record temperature and salinity data**. While the Argo project is a great example of how **international cooperation can provide means to collect ocean data**, it is not sufficient to measure all parameters needed to unravel ocean and ecosystem variability. A lot of the data on **fishery and stock assessment is obtained by fishery industries**, but their **underlying commercial interest often discourages data sharing**, Dr. Jong explained. Thus, to make predictions and take informed decisions on the future of oceanic ecosystems, **data needs to be made accessible to policy-makers**, Dr. de Jong finally argued.

*Mark Payne, Researcher and Associate Professor, DTU Aqua, Technical University of Denmark, Blue-Action and MISSION ATLANTIC projects*

***“We need to make sure that forecasting tools are used to their full potential in climate adaptation strategies.”***

Dr. Mark Payne presented DTU Aqua’s work on **fish forecasts and climate services in the Atlantic** and particularly stressed the importance of **society-relevant forecasting**. Dr. Payne argued that we need to use the **available ocean observations tools to make predictions about ocean properties**, such as temperature and saline conditions, but also to answer the **information needs of society** regarding fish stock distribution for example. To illustrate this, Dr. Payne gave the example of **the blue whiting fish distribution in Northern Europe**. Measurements show a shift in the blue whiting distribution from 2007 to 2013, mostly due to temperature and saline conditions’ variations. In terms of human activity, **this shift in distribution from one region to another has a substantial impact on local economies**, which could potentially even lead to **fishery production conflicts**. Dr. Payne asserts that the data provided by case studies can **help develop forecasting the societal impact of fish distribution variabilities**. To do so, strategies need to be **co-designed between forecast users and producers, expanded and operationalized across as many fish stocks as possible** in Europe. Finally, Dr. Payne argued that fish forecasting should also be used as an **adaptation tool for fishery-dependent communities** exposed to variable climates.

## Reactions

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*Laura Meller, Campaigner and Ocean Specialist, Greenpeace*

*“Our focus needs to shift from exploitation to protection. Novel science tools are essential to achieve this objective in the marine life sector.”*

In her speech, Dr. Laura Meller called for **better protection of current marine life and fish stocks**, by notably establishing **highly protected marine reserves across 30% of the world’s oceans by 2030**. While acknowledging that the recent EU Biodiversity Strategy has taken this recommendation into account, Dr. Meller stressed that the EU should take further action to ensure the full protection of its marine life. Dr. Meller also reiterated previous statements about **accurate data being essential for building sound adaptation and recovery strategies**. Dr. Meller further suggested that already existing tools for designing protected area networks can use various types of data, including **biological, oceanographic and socioeconomic data layers of oceanic life**. Such tools could use novel fish forecasting outputs to design future-proof marine reserve networks at regional and local levels. Innovative **data tools**, such as fishery forecasting methods, Dr. Meller stated, should support **decision-making** to ensure a sustainable future for Europe’s oceans, while sound decisions to protect marine life can be taken based on the evidence and data available today.

*Manuel Barange, Director, Fisheries and Aquaculture Policy and Resources Division, Food and Agriculture Organization of the United Nations (FAO)*

*“It is important to prioritize climate change and its impacts in future studies, as projections are still facing a lot of uncertainties.”*

Dr. Manuel Barange began his intervention by stating that **only 34% of fisheries are currently overfished** and that **it is important to take in consideration the natural fluctuations that cause the state of fisheries to vary in time**. Dr. Barange highlighted a dichotomy; in less-developed countries, a deterioration of the sustainability of marine activities has been noticed, while more-developed countries are facing the opposite trend. **The ocean, as a food source, is seen as part of the solution to eliminate world hunger and poverty**. Thus, it is important that effective management of fisheries and aquaculture is undertaken as it is the best conservation technique available. Dr. Barange also underlined how **marine protected areas (MPAs), which are necessary, are currently endangered by climate change**. Therefore, **it is important to prioritize climate change and its impacts in future studies, as projections of the marine environment and biological systems are still facing a lot of uncertainties**. To conclude, Dr. Barange highlighted blue transformation as a focus area of the FAO; blue transformation includes a sustainable intensification of aquaculture, an improvement

of fisheries management and an enhancement of the role of fish and fish products in food and nutrition strategies.

### *Daniel Voces, Managing Director, Europêche*

***“Resilience and sustainability are at the core of the European fisheries’ management strategy to face the impacts of climate change.”***

Within his intervention, Mr. Voces highlighted the contribution of the European fishing industry in fighting climate change. As an example, CO2 emissions from fishing are down by 40% compared to 1990 levels. Mr. Voces recognized the impact of the fishing industry on the abundance of fish stocks, but also highlighted that **no species of marine fish has gone extinct due to commercial fishing so far**. Mr. Voces underlined that **resilience and sustainability are at the core of the European fisheries management strategy to face the impacts of climate change**. Moreover, Mr. Voces stated that Europêche is in line with FAO’s perspective when it comes to the importance of efficiently managing fisheries globally. Mr. Voces addressed the current and future impacts of climate change on fisheries and highlighted **the need for collective, science-based solutions (e.g fish-forecasts, information of emerging and declining species, etc.) and for adequate funding from the European Union**. Finally, Mr. Voces underlined **the importance of decarbonizing the fish industry by using hydrogen and clean gas engines**.

## Reactions by MEPs

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### *MEP Isabel Carvalhais*

***“It is important to keep a systemic approach to fisheries’ management, thereby identifying the interconnections between human activities and nature.”***

MEP Dr. Carvalhais stated **the important role of the European Commission when it comes to financing research and innovation projects, that allow better data collection and treatment methods**. The results of those projects give a better understanding of the dynamics of the seas and help in developing better equipment and solutions. Dr. Carvalhais highlighted **the intertwinement of fisheries’ management and the European Green Deal as they share a common goal; developing green and blue economies based on an integrated approach to the food chain**. Moreover, Dr. Carvalhais emphasized the importance of keeping a **systemic approach** to fisheries management, thereby identifying **the interconnections between human activities, their impacts and nature**. Dr. Carvalhais reiterated the need for more scientific evidence to help assess the impacts of climate change and our activities on marine ecosystems. Finally, Dr. Carvalhais stressed **the need for future political decisions to be aligned with the rationale of the European Green**

**Deal** and especially keeping the three-pillar approach of the models proposed.

### *MEP Grace O’Sullivan*

***“Science, technology and responsible governance are necessary to allow global fish populations to recover and to ensure the availability of fish and fish products.”***

MEP Ms. O’Sullivan reiterated **the importance of science when it comes to forecasting and projecting**. This allows a better understanding of fish distribution in the oceans and better governance. Ms. O’Sullivan also stressed the importance of considering the emotional and economic connections between the Atlantic Ocean and the populations interacting with it. Furthermore, Ms. O’Sullivan highlighted **how critical ocean dynamics are to understand fish distribution patterns and identifying changes**. In addition, Ms. O’Sullivan commented on the importance of the EU Biodiversity Strategy to help protect the marine environment, especially fisheries and fish stocks. Ms. O’Sullivan additionally underlined the need for MPAs’ designation to be based on scientific facts and reiterated the key role of the location of MPAs when it comes to species’ migration corridors. Moreover, Ms. O’Sullivan stated that the exploitation of stocks is currently over the maximum sustainable yield levels. **Science, technology and responsible governance are necessary to allow global fish populations to recover, to ensure the availability of fish and fish products as well as to provide sustained employment for fishers and populations that are economically dependent on the oceans.**

## Discussion with the audience, moderated by Ms. Sandra Ketelhake

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During the Q&A session, Ms. Sandra Ketelhake moderated a discussion on the role of Europe in moving the fields of ocean observations and predictions forward. MEP Grace O’Sullivan stressed the importance of long-term planning based on up-to-date science and technology, and addressed concerns on the continuity of these plans while governments change and evolve. Ms. O’Sullivan therefore suggested putting in place legally-binding policies, thereby ensuring long-term commitment. The importance of the implementation of common European legislation by Member States was also highlighted by Dr. Zampoukas, especially on sensitive topics such as the designation of MPAs. Moreover, a question from the audience regarding research in social and natural sciences was answered by Dr. Schmidt, who emphasized on the interconnection of the two areas and the need to integrate them within effective policy-making. In addition, Dr. Payne mentioned the need to increase observations for better data collection regarding the impacts of human activities in the oceans. Finally, Dr. Meller underlined the necessity to assess and take into account the impacts of industrial fishing on local fishers and communities.

## Closing remarks

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*Noel Keenlyside, Professor at Bjerknes Centre for Climate Research and University of Bergen, Blue-Action and TRIATLAS projects*

Summing up the discussion, Dr. Keenlyside highlighted **that humanity's well-being is dependent on the health of the ocean**. Moreover, Dr. Keenlyside stressed the fact that **sustainability does not conflict with productivity**. Research has shown that, if human activities in the ocean were sustainably managed, it could provide **six times** more food than it does today. Fish forecasts are solutions that can showcase innovative services for the achievement of the European Green Deal and the European Climate Pact. Dr. Keenlyside underlined how the next step is to combine numerical climate predictions with marine ecosystem models to provide more comprehensive near-term forecasts of marine ecosystems that account for the influence of **both human activities and climate change**. Dr. Keenlyside highlighted the **necessity of considering the Atlantic Ocean in its entirety, taking into account ocean currents and the atmospheric circulation which contribute to global ocean dynamics**. It is therefore impossible to understand the ongoing marine ecosystems changes in a specific region without having a global perspective and understanding.

*MEP Pierre Karleskind*

MEP Dr. Karleskind reiterated that **despite the fact that the ocean is continuously evolving, climate change is speeding up this process**. As a result, scientific observation and forecasts are essential for predicting fish distribution and abundance in the future. In addition, the available scientific data could be used in a more efficient way in that regard. **Cooperation between scientists and authorities** is necessary to put it place effective and sustainable management. Furthermore, **appropriate funding** is needed to develop scientific methods and technologies at a larger scale. This would allow more effective decision- and policy-making processes. Last but not least, Dr. Karleskind highlighted the importance of adopting **an ecosystemic approach** to the issue of fisheries management by using scientific data and modelling, aiming at putting better policies in place.