



ECOSCOPE

EcoScope Project – briefing document

What is EcoScope?

EcoScope is a Horizon 2020 funded project that aims to promote effective and efficient, ecosystem-based fisheries management. As part of the project, EcoScope will develop several e-tools, including an interoperable *EcoScope Platform* and a robust decision-making *EcoScope Toolbox*.

Who are the EcoScope e-tools designed for?

The EcoScope Platform and Toolbox are designed for any person interested in exploring how different fisheries management options would impact the whole ecosystem and fisher's catch over time. This includes management options such as marine protected areas/ fisheries restricted areas, total allowable catches, marine spatial planning, bycatch, fisher's profitability, etc. It is therefore intended for a wide range of users from decision makers, regulators and advisory bodies to NGOs, scientists, fishers and any other person interested in exploring different management options in the full ecosystem context.

What will the EcoScope Platform and Toolbox enable users to do?

The platform and toolbox will enable users to apply an ecosystem-based approach to fisheries management by evaluating and presenting the impact of various management options. Based on a wide array of fisheries-related datasets, ecosystem models and interdisciplinary indicators, and available through a [single public portal](#), the tools will inform reflection and decision-making. Homogenised data will be made available to users through interactive maps. Both primary data and on-demand derived data services - such as forecasts and model outputs - will be provided in various formats. Through the EcoScope Platform, complex ecosystem functions and interrelations between abiotic, biotic and human components will be revealed and their spatio-temporal variability (including historical trends) will be assessed and visualized. The EcoScope Toolbox will be a novel decision-support system for ecosystem-based fisheries management, which will use a scoring system to assess current and past ecosystem status and evaluate the impact of potential management options.

What data, model results and indicators will underpin the EcoScope Platform?

The EcoScope Platform will combine climatic, oceanographic, biogeochemical, environment, biological, fisheries and socio-economic datasets covering all European Seas. It will include data from external providers such as [Copernicus Marine Services](#), [Global Ocean Observing System](#), [EMODnet](#), [SMHI](#) (river outflows and nutrient fluxes), [CORDEX](#) (data from climate change scenarios), [FAO](#), [ICES](#) and [Sea Around Us](#) fisheries data (catch time-series per species, biomass assessments and fleet statistics), [Global Fishing Watch](#) (fishing effort data), [AquaMaps](#) (species distributions), [ESFRI](#) (marine environmental data from

various projects), [Marine IBA e-atlas](#) (bird biodiversity) and [ACCOBAMS](#) marine mammal's data among many others. In addition, the platform will assimilate data, model results and indicators produced by the EcoScope project. This will include impacts of climate change on abiotic factors and species distribution, risk and vulnerability assessments (impacts of climate and human activities on biodiversity), ecological niche predictions for > 4000 species, ecosystem and stock assessments, fisheries and diversity indicators, socio-economic indicators and ecosystem models for eight case study areas (see below).

Which areas will ecosystem models be created for?

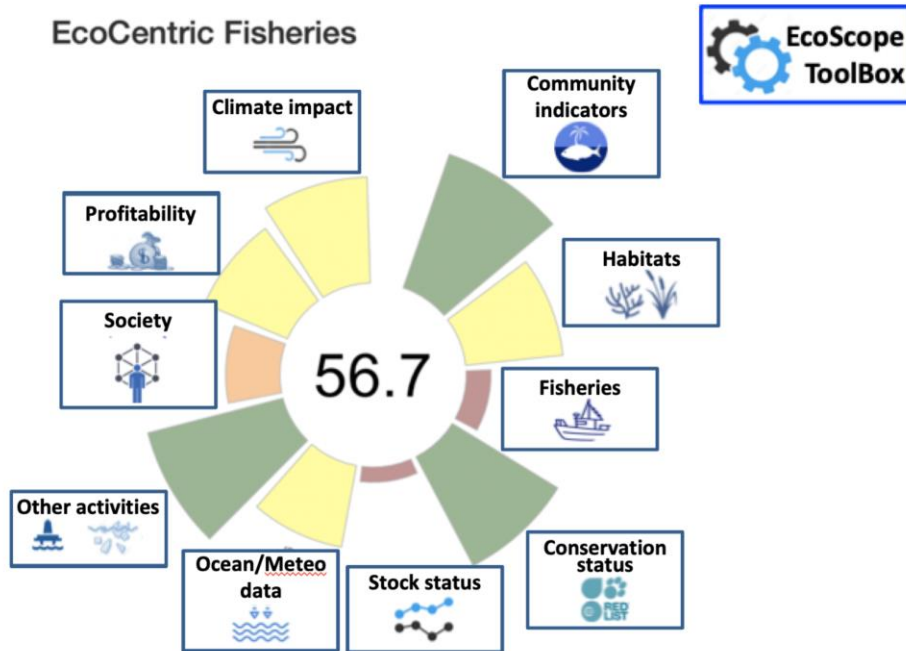
Ecosystem models will be created for eight case study areas (North Sea, Baltic Sea, Bay of Biscay, Balearic Sea, Adriatic Sea, Aegean Sea, Baltic Sea, Black Sea and Levantine Sea) and will form the basis for testing and evaluating various management and policy scenarios. They will allow users to explore the impact of very concrete management options, such as the effects of adding a new Seasonally Closed Area in the Adriatic Sea on fish stocks, the wider marine ecosystem and fisher's profitability. Moreover, a new edition of the Marine Spatial Planning Challenge simulation platform will be created to cover the eastern Mediterranean Sea, which will include a fisheries module to visualise the effects of different fisheries management scenarios. The fisheries edition will then be applied to existing MSP Challenge simulation platform editions, covering five out of the eight case studies (Baltic Sea, North Sea, Adriatic Sea, Aegean and Levantine Seas) by the end of the project.

How will the EcoScope Toolbox work?

The EcoScope Toolbox will be a novel decision-support system for ecosystem-based fisheries management, which will use a scoring system to assess current and past ecosystem status and evaluate the impact of potential management options. The impact of potential management options can be evaluated by countries (e.g. Greece), ecosystems (e.g. Aegean Sea), ICES ecoregions (Aegean and Levantine Sea) and FAO/GFCM subareas (e.g. 37 3.1). The Scoring system will integrate indicators on oceanography, climate, environment, habitats, biology, community, fisheries and economics. Examples of indicators that will be included are: maximum sustainable yield (MSY), diversity indicators related to the effect of fishing on communities and ecosystems, indicators assessing the probability of a protected species to fall within one of the IUCN Red List categories, ecosystem overfishing indicators, and fisheries profitability indices among many others.

The Scoring system will be based on a set of metrics that will measure the success of a specific variable with respect to a sustainable target. For example: One metric could be the percentage of stocks sustainably exploited or the conservation status of vulnerable species within a case study (ecosystem, area or country) and the sustainability target will be 80-100%. A metric will score 100 if its maximum sustainable gains are achieved and the ecosystem's ability to deliver those gains in the future is not compromised. Lower scores will indicate that more gains could be achieved or that current methods are unsustainable and future gains are compromised. An ecosystem-based approach to fisheries management would target a score of 80-100% (for sustainable exploitation of marine resources and healthy marine ecosystems). The Figure below illustrates how the EcoScope Toolbox will appear to the user.

EcoCentric Fisheries



Hypothetical image showing how the EcoScope Toolbox will appear to the user, the indicators involved and the metric system that will derive the final score. In this example, two of the nine metrics are highlighted in red, meaning that they are unsustainable and that management actions should be taken. The indicators highlighted in yellow and orange are marginally above sustainability level and should be closely monitored for the following years.



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