



Promoting common advisory councils: the experience of MEDAC and other regional organizations

The development of advice on climate change and marine litter: the experience of FACOPE

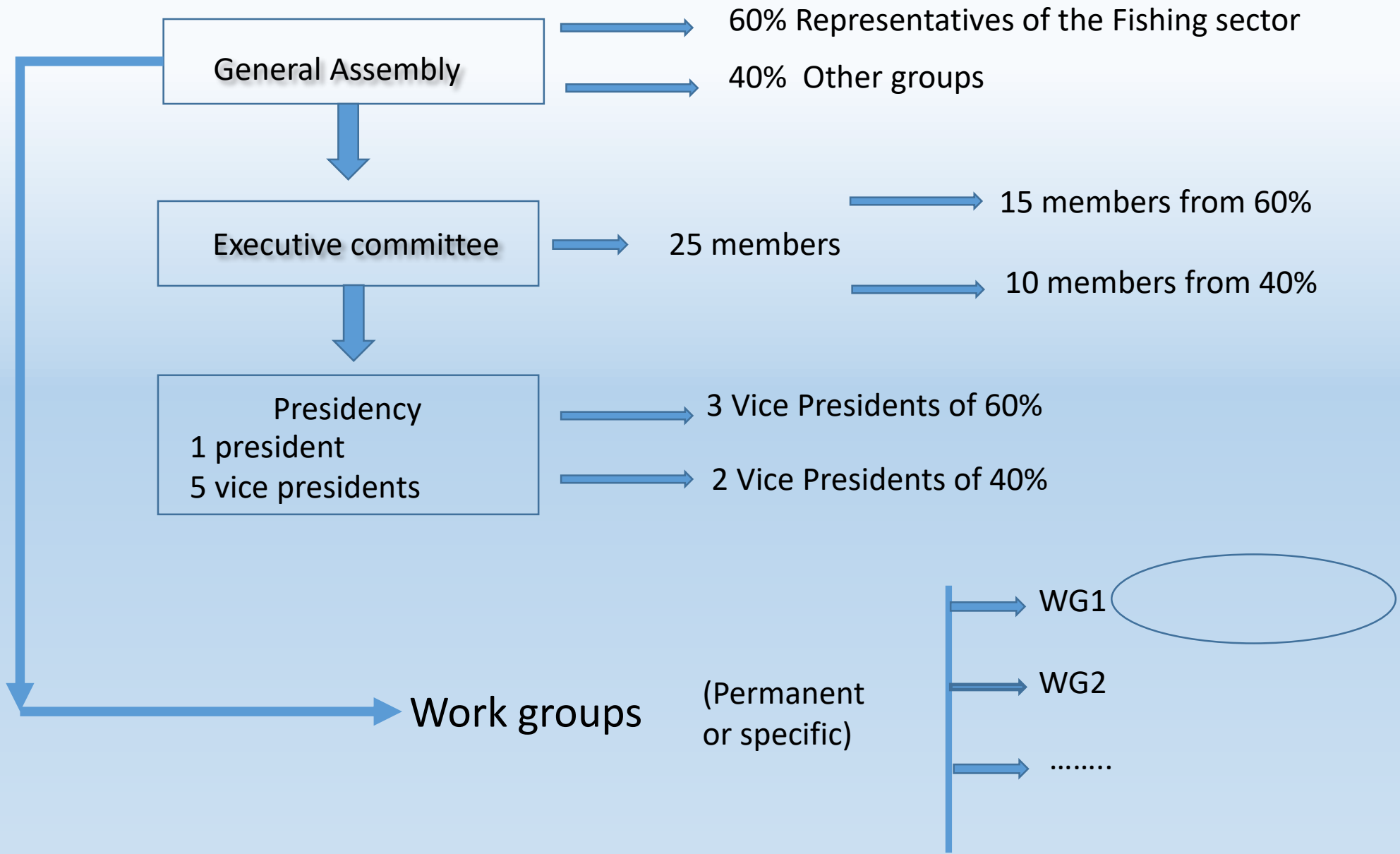
7 October 2021





The development of advice on climate change and marine litter: the experience of FACOPE

Medac structure





What is FACOPE?

It is an Andalusian Federation (Spain) of Cofradías de Pescadores, where shipowners and crew members are jointly represented.

It is present in 99% of the fishing ports of Andalusia.

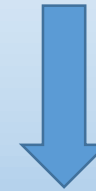
Represents vessels of all modalities: bottom trawling, surface longline, small gear, purse seine, etc.





References on the influence of climate change on fisheries have been recurrent in the different topics debated in W G1, mainly since the announcement of the draft of the Western Mediterranean Demersal

Plan



Need to have more knowledge about this.


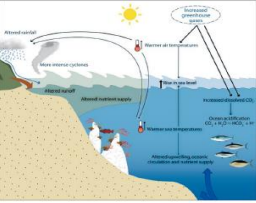


Participation of **the scientific world**





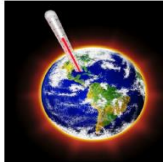
September and October 2020




**Climate change
and impact on the fisheries sector**

*Presentation for MEDAC WG1,
online meeting of 30 September 2020*

Dr. George Triantaphyllidis, Greece
GeorgeTrianta@hotmail.com





Slide 1 / 29



**Climate change and the shifting
distribution of Mediterranean fishes**

Fabio Grati
National Research Council, Institute for Biological Resources and Marine Biotechnologies
Ancona (Italy)



**Effects of climate change
on fisheries**

MEDAC WG 1 meeting - 28 October 2020

Simone Libralato (slibralato@inogs.it)
Research Scientist on Marine Ecology at the
Istituto Nazionale di Oceanografia e di Geofisica Sperimentale

http://es.med-ac.eu/files/documentazione_eventi/2020/10/2020_climatechangefisheries_medac_libralato_vdef.pdf

http://es.med-ac.eu/files/documentazione_eventi/2020/10/4_grati_climate_change.pdf

http://es.med-ac.eu/files/documentazione_eventi/2020/09/6_triantaphyllidis_scientificaspectsoftheimpactonthesector.pdf





Key role of the WG1 coordinator:

Advice draft
(February 2021)

Beginning of the period for submitting observations and contributions by ALL MEDAC members

MEDAC - Mediterranean Advisory Council

DRAFT MEDAC ADVICE ON CLIMATE CHANGE
WG1 Coordinator Proposal

The MEDAC, having deepened the topic of climate change, through the collaboration of researchers who presented at the MEDAC meetings of 28 September 2020 and 30 October 2020 the main scientific knowledge regarding the impact on fisheries.

whereas:

GENERAL PREMISES

Recent accelerated climate change has exacerbated existing environmental problems in the Mediterranean basin caused by the combination of changes in land use, increasing pollution and declining biodiversity (MedECC, 2019¹) - Tria 4;

Climate changes affects the productivity of stocks through changes in recruitment and interactions with trophic web. Therefore, assessment and management should consider effects of climate and sea change on the resources (Fiorentino);

It seems that the Mediterranean Basin is feeling the effects of climate change more than ever and that climate change can impact fisheries through multiple path-ways; (Shelton, 2014²) - Tria 17;

Scientific literature is bringing us several evidences that climate change are negative on fisheries (Free et al., 2019; Gaines et al., 2018; Moulllec et al., 2014) although some works based on global ocean models suggest future primary production increase in some higher latitude areas with potential benefits for fisheries (Barange et al., 2014) - Libralato;

CAUSES AND EFFECTS OF CLIMATE CHANGES: 1. TEMPERATURE

Scientists have observed Earth's surface is warming and many of the warmest years on record have happened in the past 20 years³ - Tria 2.

For the Mediterranean region, average annual air temperatures are now approximately 1.5°C higher than during the preindustrial period (1880-1899) and well above current global warming trends (+1.1°C). (Cramer et al., 2018⁴) - Tria 7.

¹ Risks associated to climate and environmental changes in the Mediterranean region. A preliminary assessment by the MedECC Network. Science-policy interface – 2019. https://www.mediterranean-council.europa.eu/media/documents/default-source/201910/MedECC-Booklet_EN_WG1.pdf


² Shelton, C. 2014. Climate change adaptation in fisheries and aquaculture – compilation of initial examples. FAO Fisheries and Aquaculture Circular No. 1088. Rome, FAO. 34 pp.

³ See <https://www.climate.gov/news-center/46262/understanding-climate-climate-change-global-temperature>

⁴ Cramer Wolfgang, Joel Christ, Marcella Feder, Joaquin Garrabou, Jean-Pierre Gattuso, et al. (2018). Climate change and interconnected risks to sustainable development in the Mediterranean. Nature Climate Change, Nature Publishing Group, 8 (11), pp.972 - 980. doi:10.1038/s41558-018-0209-2#%3A01911390

Disclaimer - This opinion reflects only the MEDAC's view and the Commission is not responsible for any use that may be made of the information that it contains

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The role of FACOPE in this process:

1. Exchange of opinions between the Cofradías

2. Exchange opinions with other Spanish organizations

3. Present observations to Medac and follow up on the contributions of other members.

- Increased salinity and impact on species.
- Appearance and spread of invasive species.
- Other causes besides climate change: human actions
- Need to establish an early warning program

.....

For Mediterranean coasts, regional changes in river runoff, provoking salinity changes and also significant land movements in the eastern parts of the basin need to be considered additionally. In addition to the impacts of global sea level change, circulation patterns in the Mediterranean may also be modified and generate changing regional sea level patterns, with local differences in sea surface height of up to 10 cm. (Auccelli PPC et al. - 2017)¹⁶ - Tria ¹⁰;

(From my scientific ignorance, I understand that in some areas the increase in temperature of the Earth's surface (including the seas) can cause an increase in evaporation and as a consequence an increase in the salinity of the water?)

Comentario [JLCU1]: A question that I ask from the greatest of ignorance, but if it is positive, it should be stated in the opinion.

CAUSES AND EFFECTS OF CLIMATE CHANGES: 1. ALIEN SPECIES

Most species from warmer regions enter the Mediterranean from the Red Sea through the recently widened Suez Canal (they are referred to as Lessepsian species), ~~either are transported accidentally through ballast water from ships.~~ although there is another entry vector for these species through maritime traffic and ballast water. More than 700 non-indigenous marine plant and animal species have been recorded so far in the Mediterranean, many of them are favored by the warmer conditions (Marbà, Jorda, Agustí, Girard, Duarte (2015)¹⁷; Azzurro, Moschella, Maynou - 2011¹⁸) - Tria 18;

Comentario [JLCU2]: I understand that if we are reporting on the effects of climate change on species and on fishing, this, being an important issue, should be included as one more threat, but not linked to climate change.

The eastern Mediterranean is the area displaying the most severe environmental effects of invasive species. Some tropical invasive species create heavy disturbances in ecosystems, like tropical rabbit fish, which devastate algal forests. (Vergés et al. - 2014)¹⁹ - Tria 18; ~~also in the extreme western Mediterranean it is being affected by invasive species, in smaller numbers but not to a lesser extent, such as the alga Rugulopterix okamurae~~

Comentario [JLCU3]: We must not forget the western Mediterranean, whose extension is increasing.

Movements of species and arrival of alien species is going to represent in some cases a compensation of criticalities (e.g. bluefish; bluecrab) - Accounting for thermal, alien and competition effects results in negative future effects even including some adaptation of fisheries to new species. (Libralato S., Caccin A. and Pranovi F., 2015²⁰; Gaines, S. D., Costello, C., Owashi, B., Mangin, T., Bone, J., Molinos, J. G., ... & Ovando, D., 2018²¹; Cheung, W. W., Pinnegar, J., Merino, G., Jones, M. C., & Barange, M., 2012²²) - Libralato.

CAUSES AND EFFECTS OF CLIMATE CHANGES: 1. WINNERS AND LOSERS

The bulk of increase in catch and biomass would be located in the southeastern part of the basin while ~~catch and biomass would decrease by up to 23% in the western part.~~ The changes would cause an increase in biomass and captures in the southeastern part of the basin, while in the western part a decrease of up to 23%. ~~Winners are species belonging to the pelagic group, are thermophilic and/or exotic, of~~

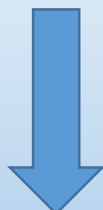
Comentario [JLCU4]: I believe that this wording improves the intention that is expressed and that it is the changes that entail the increases and decreases

¹⁶ Improved fisheries management could offset many negative effects of climate change. *Science advances*, 4(8), eao1378.
¹⁷ Footprints of climate change on Mediterranean Sea biota. *Frontiers in Marine Science*, 2, 00056
¹⁸ Tracking signals of change in Mediterranean fish diversity based on local ecological knowledge. *PLoS ONE*, 6(9), e24885]
¹⁹ Tropical rabbitfish and the deforestation of a warming temperate sea. *Journal of Ecology*, 102, 1518-1527
²⁰ Modeling species invasions using thermal and trophic niche dynamics under climate change. *Frontiers in Marine Science*, 2, 29. doi: 10.3389/fmars.2015.00029
²¹ Review of climate change impacts on marine fisheries in the UK and Ireland. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 22(3), 368-388.

The development of advice on climate change and marine litter: the experience of FACOPE



Coordinator: compilation of draft + input from members



Executive committee approval process

Final approval
March 30, 2021



MEDAC - Registered Office Via XX Settembre, 20 - 00187 Rome (Italy) - Identification number 9124810381 - Association registered with the Tribunale of Rome as a legal entity n. 124/2017



Ref.:70/2021 Rome, 30 March 2021
MEDAC ADVICE ON CLIMATE CHANGE

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whereas:

GENERAL PREMISES

Recent accelerated climate change has exacerbated existing environmental problems in the Mediterranean basin caused by the combination of changes in land use, increasing pollution and declining biodiversity (MedECC, 2019¹) – George Triantaphyllidis²;

Climate changes affects the productivity of stocks through changes in recruitment and interactions with trophic web. Therefore, assessment and management should consider effects of climate and sea change on the resources – Fabio Fiorentino³;

It seems that climate change is affecting the Mediterranean Basin more than ever and that climate change impacts fisheries through multiple path-ways; (Shelton, 2014⁴) - George Triantaphyllidis⁵; Scientific literature shows several evidences that climate changes are negative on fisheries (Free et al., 2019; Gaines et al., 2018; Moulec et al., 2014) although some works based on global ocean models suggest future primary production increase in some higher latitude areas with potential benefits for fisheries (Barange et al., 2014) – Simone Libralato⁶;

CAUSES AND EFFECTS OF CLIMATE CHANGES: 1. TEMPERATURE

Scientists observed Earth's surface warming and many of the warmest years have been recorded in the past 20 years⁷ - George Triantaphyllidis⁸.

¹ Risks associated to climate and environmental changes in the Mediterranean region. A preliminary assessment by the MedECC Network. Science-policy interface – 2019. https://umsecretariat.org/wp-content/uploads/2019/10/MedECC-Booklet_EN_WEB.pdf
² Slide 4 http://en.med-ac.eu/files/documentazione_eventi/2020/09/8_triantaphyllidis_scientificaspectsoftheimpactorthesector.pdf
³ Slide 15 http://en.med-ac.eu/files/documentazione_eventi/2020/10/5_fiorentino_managing_small_pelagics-L.pdf
⁴ Shelton, C. 2014. Climate change adaptation in fisheries and aquaculture – compilation of initial examples. FAO Fisheries and Aquaculture Circular No. 1088. Rome, FAO. 34 pp.
⁵ Slide 17 http://en.med-ac.eu/files/documentazione_eventi/2020/09/8_triantaphyllidis_scientificaspectsoftheimpactorthesector.pdf
⁶ http://en.med-ac.eu/files/documentazione_eventi/2020/10/2020_climatechangeifsheries_medac_libralato_vdef.pdf
⁷ See: <https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature>
⁸ Slide 2 http://en.med-ac.eu/files/documentazione_eventi/2020/09/8_triantaphyllidis_scientificaspectsoftheimpactorthesector.pdf
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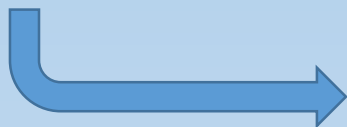
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European
Commission

DIRECTORATE-GENERAL FOR
MARITIME AFFAIRS AND FISHERIES



The Commission is carefully assessing the proposed actions and **we will consider these in our work, within the European Union and in the cooperation with our regional partners, at the level of the GFCM.** I have the pleasure to inform you that the European Union has been actively promoting measure to address the impact of climate change, pollution and non-indigenous species in the future GFCM Strategy (2021-2030), currently under negotiation.



EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR MARITIME AFFAIRS AND FISHERIES

The Director-General

Brussels,
MARE/D1/LB (2)

Subject: Your Ref.:70/2021_MEDAC opinion on climate change

Dear Mr Buonfiglio,

Thank you for your letter expressing your opinion on the impact of climate change on the Mediterranean sea basin. Your contribution is timely and most welcome. The importance of the topic for the future of sustainable fisheries management is clear.

The Commission is carefully assessing the proposed actions and we will consider these in our work, within the European Union and in the cooperation with our regional partners, at the level of the GFCM. I have the pleasure to inform you that the European Union has been actively promoting measure to address the impact of climate change, pollution and non-indigenous species in the future GFCM Strategy (2021-2030), currently under negotiation.

Let me thank you for your commitment. Looking forward to our cooperation, I invite you to take contact with Ms Pascale Colson, coordinator of the GFCM Strategy (Pascale.Colson@ec.europa.eu; +32 2 29 56273), should you have any questions or need a reply.

Yours sincerely,

Charl...

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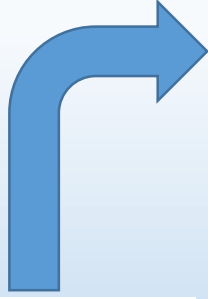
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GFCM

Scientific
Advisory
Committee

June 2021



26. Acknowledging the growing prevalence of non-indigenous species (NIS) in the Mediterranean, and the different potential approaches to mitigate their expansion according to their commercial status, the Committee underlined the importance of addressing the management of NIS from a fisheries perspective, including possible market options. ***The Committee agreed on the need to launch an in-depth reflection, within a dedicated research programme to, inter alia, consolidate an observatoire*** with the aim to integrate all available information, foster engagement between relevant actors at the Mediterranean level, improve the understanding of the interactions of NIS with receiving ecosystems, as well as investigate effective management through fisheries management tools and/or nature-based solutions (e.g. protected areas)



59. Within the regional adaptation strategy to cope with the effects of climate change, the Committee praised the assessment of fisheries vulnerability carried out in the Mediterranean subregions together with the identification of potential management measures (Appendix 15). The Committee advised to continue working on this priority topic, focusing on tailoring measures to the subregion specificities and/or to given species or sensitive resources (e.g. red coral), as well as to **study how to integrate specific measures addressing climate change into management plans. In addition, the Committee recommended to consolidate the existing network of climate change experts involved in this work with the aim to provide regular technical advice on these topic**



The development of advice on climate change and marine litter: the experience of FACOPE



Junta de Andalucía

Consejería de Agricultura, Ganadería,
Pesca y Desarrollo Sostenible

Proyecto **ECOMARES**

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ECOPUERTOS

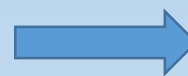


ecopuertos

Un proyecto integral para la mejora del sector pesquero



- Participation of the sector in various projects:
ECOMARES, ECOPUERTOS, MARES CIRCULARES...



In the last two years, a volume of more than
78 tons of waste has been collected.





Thank you

