



Food and Agriculture  
Organization of the  
United Nations



General Fisheries  
Commission for  
the Mediterranean

# GFCM WORK ON UNDERWATER NOISE POLLUTION

IMO-WMU Workshop on URN Reduction Policies  
with a Focus on Developing Countries

15-16 October 2024



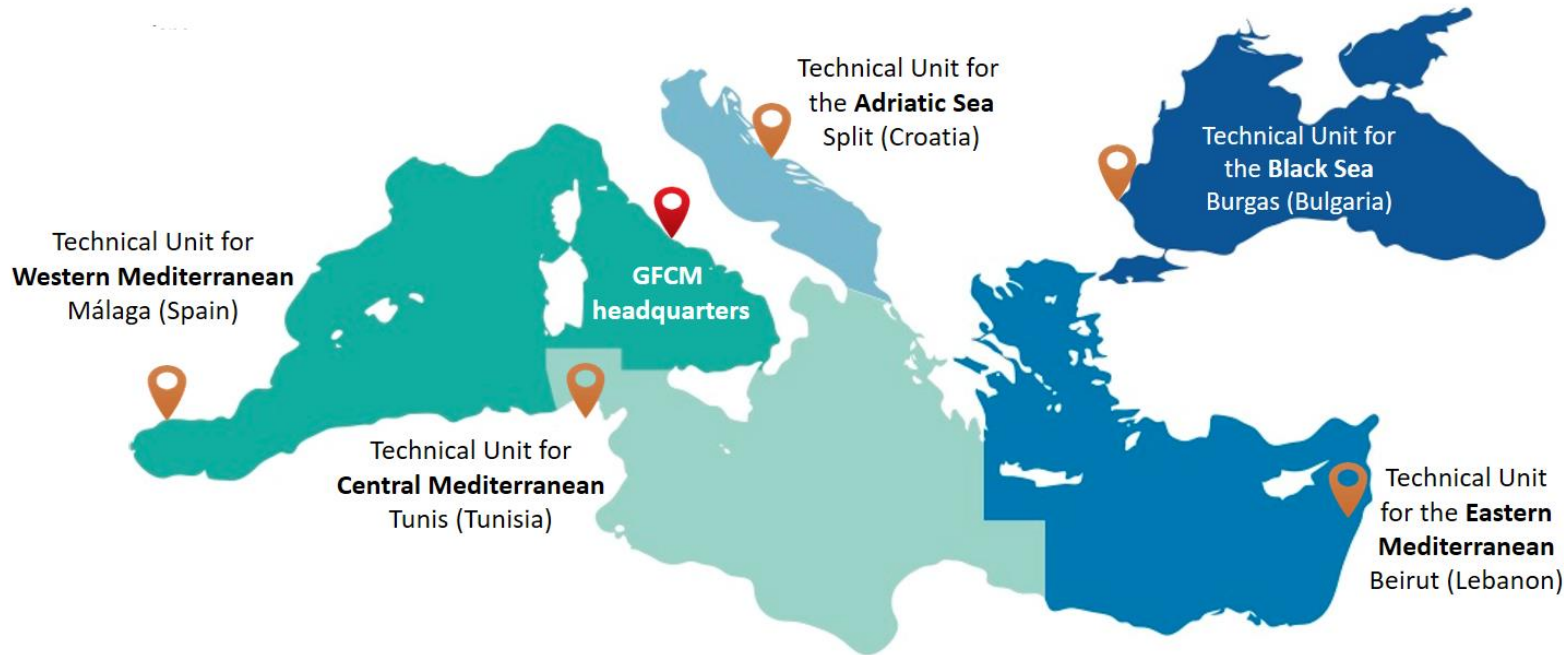


Food and Agriculture  
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# The Regional Fisheries Management Organization for the Mediterranean and the Black Sea



23 Contracting Parties and  
6 Cooperating non-Contracting Parties  
(Bosnia & Herzegovina, Georgia, Jordan, Moldova,  
Saudi Arabia, and Ukraine)

Federate efforts of countries towards:

- the **conservation and sustainable use of living marine resources** at all levels (biological, social, economic and environmental)
- the **sustainable development of aquaculture**





# GFCM & UNDERWATER NOISE

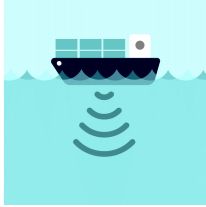
The **UNGA** has been encouraging **FAO** to develop studies on the impacts of underwater noise on fish resources and fishing catch rates, as well as associated socio-economic effects.

The request was reiterated by the **33rd session of FAO COFI (2018)** who noted with concern the issue of underwater noise.

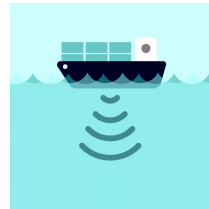
**GFCM 2023 Strategy** *“To turn the tide, action is needed on several fronts, taking into account the semi-enclosed nature of the basins and the predominantly small-scale features of fisheries and aquaculture in the region: **Anthropogenic-driven impacts**, such as climate change, non-indigenous species and pollution in all its forms, including eutrophication and **underwater noise**, need to be **urgently addressed.**”* (Output 1.4, Action C, addresses URN)



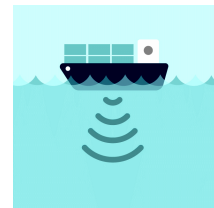
# GFCM & UNDERWATER NOISE



In **2019**, GFCM organized, jointly with **OceanCare**, a workshop on “**Anthropogenic Underwater Noise and Impacts on Fish, Invertebrates and Fish Resources**” (February 2019, FAO HQ)



In **2021**, GFCM in collaboration with OceanCare finalized “**Study<sup>1</sup> on the potential impact of underwater noise on demersal fisheries in the Fisheries restricted area (FRA) of Jabuka/Pomo Pit in the Adriatic Sea**”



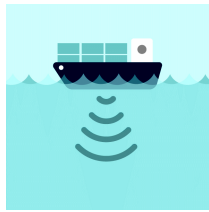
In **2023**, GFCM carried out two studies in **Albania<sup>2</sup>**:

- “**Acoustic footprint of bottom trawling in the Adriatic Sea**”
- “**Potential impacts of underwater noise radiated from ferries in the Adriatic Sea**”

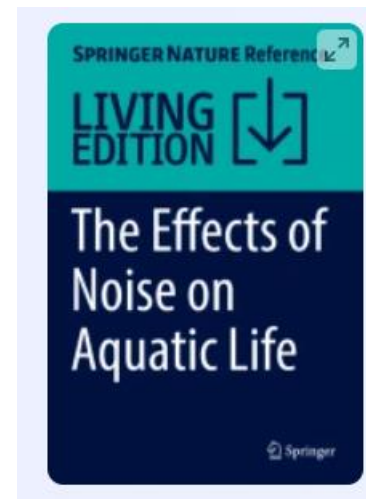
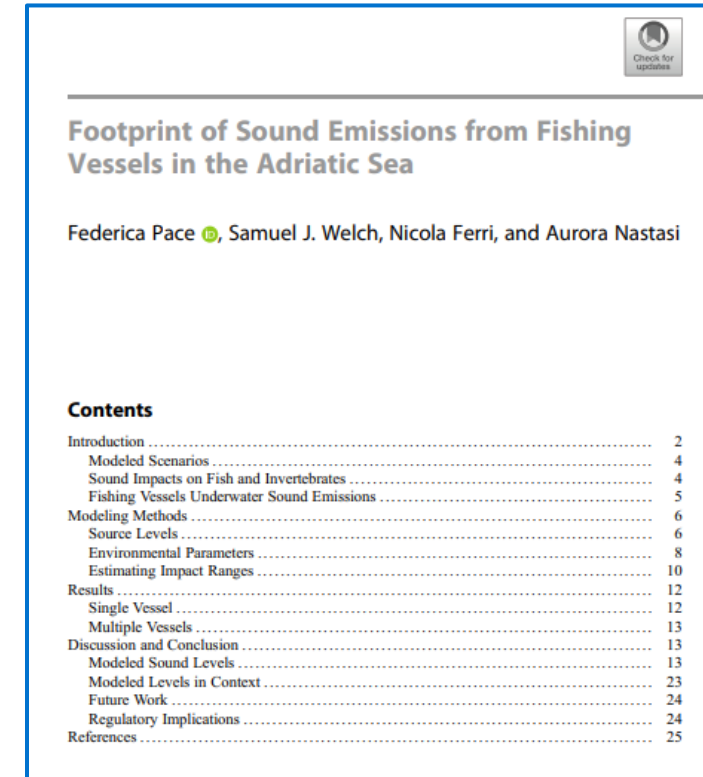
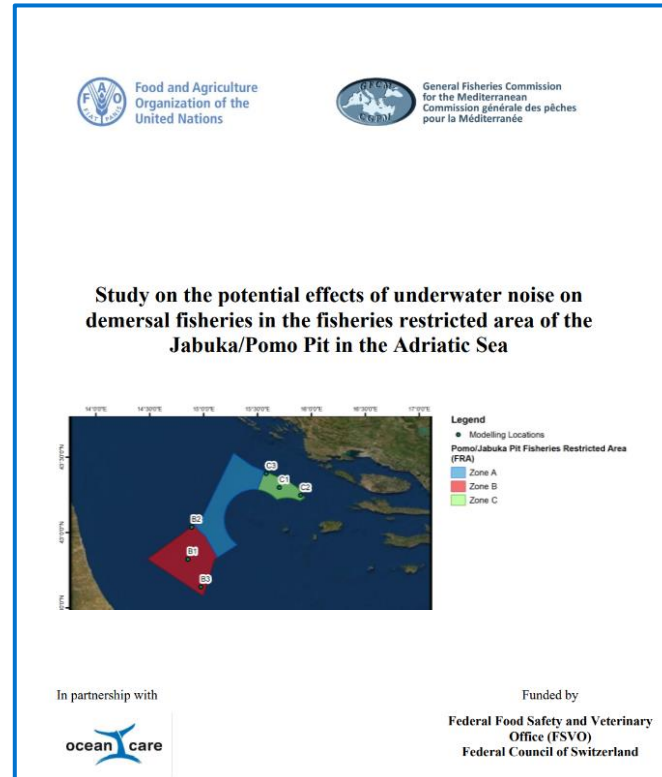
<sup>1</sup> Funded by the Federal Council of Switzerland

<sup>2</sup> Funded by GEF in the context of the FishEBM MED project





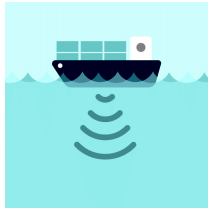
## In 2021, GFCM in collaboration with OceanCare finalized “Study<sup>1</sup> on the potential impact of underwater noise on demersal fisheries in the Fisheries restricted area (FRA) of Jabuka/Pomo Pit in the Adriatic Sea”



Pace, F., Welch, S.J., Ferri, N., Nastasi, A. (2023). **Footprint of Sound Emissions from Fishing Vessels in the Adriatic Sea**. In: Popper, A.N., Sisneros, J., Hawkins, A.D., Thomsen, F. (eds) *The Effects of Noise on Aquatic Life*. Springer, Cham.

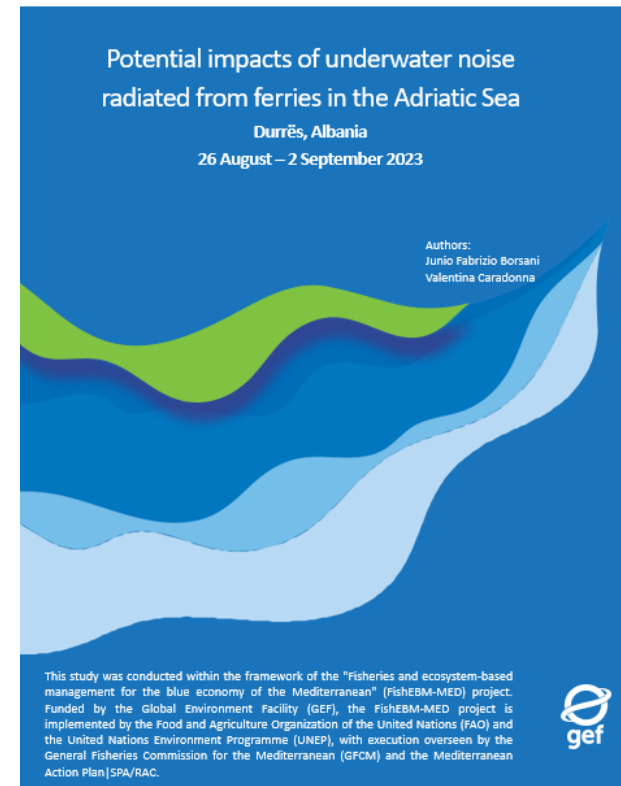
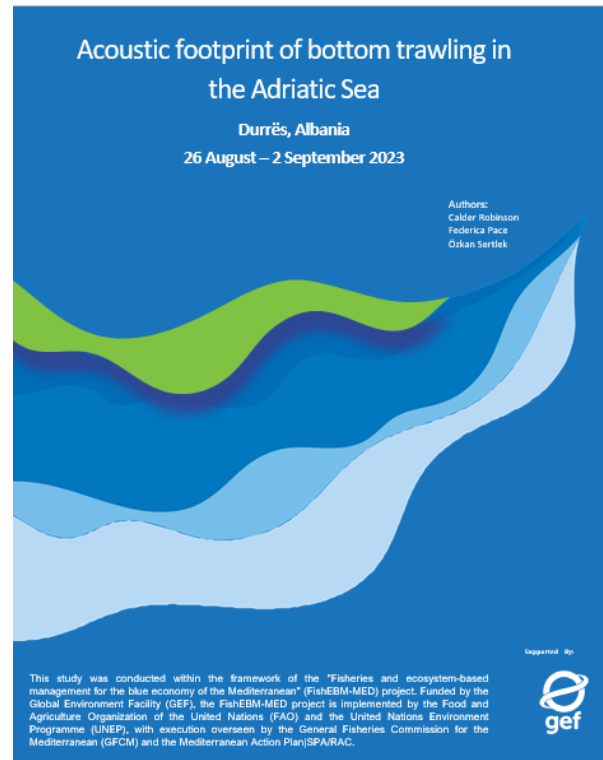
[https://doi.org/10.1007/978-3-031-10417-6\\_120-1](https://doi.org/10.1007/978-3-031-10417-6_120-1)

<sup>1</sup> Funded by the Federal Council of Switzerland



In 2023, GFCM carried out two studies in **Albania**<sup>2</sup>:

- **“Acoustic footprint of bottom trawling in the Adriatic Sea”**  
(in collaboration with JASCO applied science)
- **“Potential impacts of underwater noise radiated from ferries in the Adriatic Sea”**  
(in collaboration with Italian experts from ISPRA)



*Internal documents,  
not published yet*

<sup>2</sup> Funded by GEF in the context of the FishEBM MED project

# MAIN FINDINGS



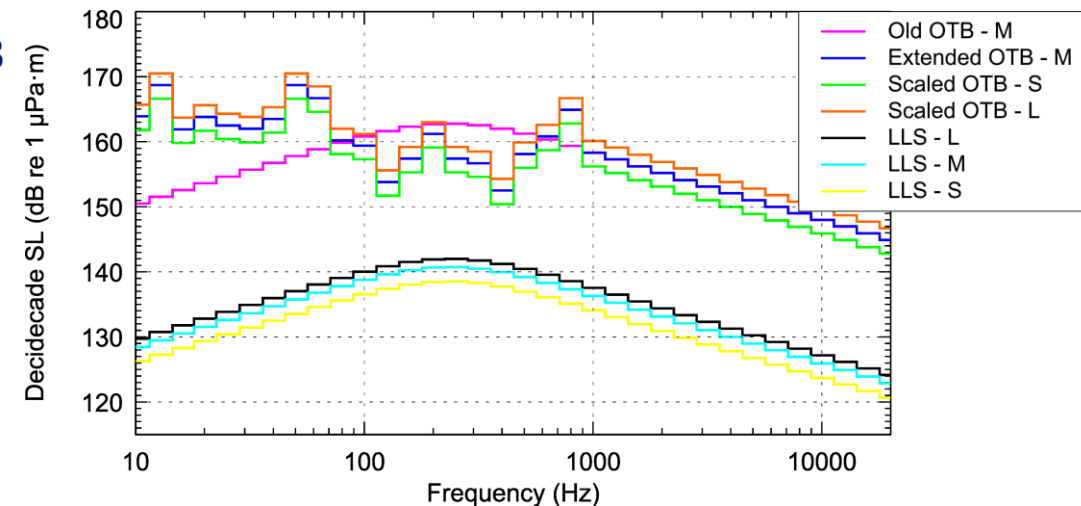
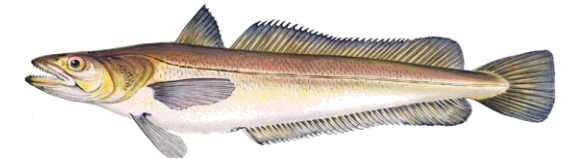
## “Study on the potential impact of underwater noise on demersal fisheries in the Fisheries restricted area (FRA) of Jabuka/Pomo Pit in the Adriatic Sea” (2021)

- Underwater **noise modelling assessment of demersal fishing activities** allowed the calculation of propagation distance and of resulting acoustic levels, including scenarios under various fishing efforts for an evaluation of cumulative noise levels.
- Potential impacts of calculated noise levels **on fish and invertebrates and marine mammals** were derived and **no threshold** (barotrauma injury and temporary hearing threshold shift (TTS), from Popper et al. 2014) **was reached** (i.e. no risk for fauna considered).

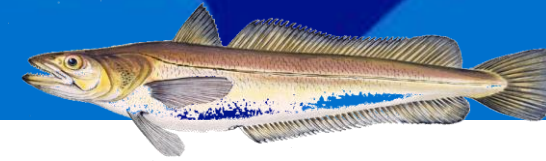


## “Acoustic footprint of bottom trawling in the Adriatic Sea” (2023)

- The **2021 models were close** to the actual noise recorded from a similar fishing vessel during fishing operations in 2023
- Estimated **levels of noise from the bottom trawler recorded** do not appear to pose **any risk of physical harm or auditory injury to fish**.
- **Plentiful other sources of underwater noise must be considered** to assess in the proper context the effect of fisheries on sensitive receptors in the area.



# MAIN FINDINGS

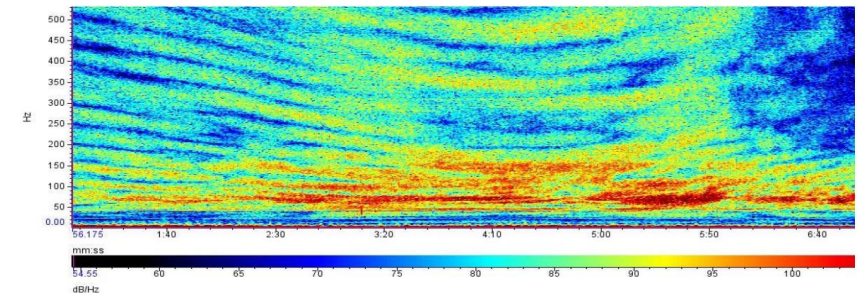


## “Potential impacts of underwater noise radiated from ferries in the Adriatic Sea” (2023)

- Levels, duration and repetition **patterns of URN suggest that no direct physical harm to fish can be foreseen**. However, for three commercial species, namely European hake, Norway lobster and the common cuttlefish, behavioural reactions and physiological consequences related to stress can be predicted.
- With the necessity of finding both temporal and spatial mitigation options, **it is suggested that a precise corridor for entry and exit routes for ships is defined and that speed reduction is applied** within a range of 5000 m from Durrës Harbour.

## FINAL REMARKS

- GFCM is the first RFMO to address the topic of underwater noise pollution, including in developing Countries
- GFCM work on underwater noise represented a stepping-stone towards better understanding the far-reaching and potential adverse effects of underwater noise on marine life and food webs by providing insights into the potential impact of underwater noise produced by human activities.
- New studies and activities in the GFCM area of application could be foreseen in the future in collaboration with other organizations.







# Thank you for your attention

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