

Blue Justice in the Mar Menor Coastal Lagoon: Small-Scale Fisheries under Ecological and Political Pressure



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The Mar Menor, located in the region of Murcia (Spain), with 135 km², is Europe's largest coastal saltwater lagoon. It has a long tradition of small-scale fisheries that have been central to the local economy and culture (Mas, 1988; Marcos et al., 2015). Fishing in the Mar Menor has traditionally been family-based, with knowledge and practices transmitted across generations (Martínez-Baños et al., 2018). Gear types adapted to the lagoon environment – such as fish weirs (e.g. 'paranza', 'encañizada'), seine nets (e.g., 'pantasana') and gillnets (e.g., trammel nets) – illustrate the close relationship between fishers and this ecosystem (Olmos-García, 2020). Although agriculture and tourism now dominate the regional economy, small-scale fishing continues to provide livelihoods and sustains cultural identity (Aguado et al., 2020; López-Martínez & Espeso-Molinero 2020; Olmos-García 2020).

Several historical pressures have progressively altered the biodiversity and sediment dynamics of the Mar Menor, placing increasing strain on the small-scale fishing sector. These include heavy metal discharges from nearby mining activities within Cartagena and La Unión – underground mining since time immemorial, open-pit mining since the 1950s, the modifications of the channels connecting with the Mediterranean in 1973, the Tagus-Segura water transfer initiated in 1979 that expanded irrigation and nutrient inputs from agriculture, intense urbanisation

Photo: La Manga del Mar Menor separates the "Mar Menor Saltwater Lagoon" (body of water towards the left) from the Mediterranean Sea. Cabo de Palos, Murcia, Spain. 2023
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Location:

Mar Menor Saltwater Lagoon, Murcia, Spain

Ecosystem type:

Marine

Main gear:

Gillnet, seine net, surrounding net, bottom long lue, surface longline, fixed nets

Target species:

Bony fishes, crustaceans, gastropods

Vessel type:

Wood or polyester boats with inboard motor

Number of fishers:

127 of which less than 5% are women

% of full-time fishers: 75



Politically, the Mar Menor fishery has been subject to extensive debate and recurrent regulatory changes. Efforts to protect the lagoon ecosystem and, therefore, the fisheries' future have been complicated by the lack of effective application of existing legislation (Giménez-Casaldueiro, 2022), and conflicting interests among agriculture, tourism, and conservation (Consejo de Gobierno de la Región de Murcia, 2019). Legislative measures – such as the designation of the lagoon as a specially protected area under both regional and EU laws – have been introduced, yet their enforcement has often been inconsistent.



and coastal works, the construction of numerous – often illegal – wells and desalination installations to meet water demands of intensive agriculture, and the consequent onset of a eutrophication process since the 1990s (Leon & Bellido, 2016; Guaita-García et al., 2022). Throughout many of these changes, the Mar Menor ecosystem displayed considerable resilience to environmental impacts (although with significant ecological changes), as overall fishing yielded remaining relatively stable despite changes in the species composition of catches (Marcos et al., 2015). However, as water quality conditions approached a critical threshold, the lagoon found it increasingly difficult to recover from nutrient inputs delivered by floods after heavy torrential rainstorms, particularly those associated with intense meteorological events locally known as DANA (Spanish acronym for 'Depresión Aislada en Niveles Altos', meaning 'Isolated Depression at High Levels'), which are typical of southeastern Spain during autumn but have become more frequent and intense in recent decades. The cumulative effect of these pressures culminated in 2016, when the ecosystem reached a tipping point and shifted irreversibly towards its current eutrophic state (Mercado et al., 2021). Since then, despite the restoration measures implemented so far (see below), only partial success has been achieved in reversing this unfortunate environmental condition of the lagoon, mainly due to the failure to address the main current problem affecting the lagoon, namely the impact of intensive agriculture and livestock farming (TRAGSATEC, 2019). These problems are likely to be exacerbated by the effects of climate change (Jiménez-Navarro et al., 2025).

Consequently, the small-scale fishing sector of the Mar Menor faces unprecedented uncertainty, as fishers struggle to adapt to environmental degradation, regulatory restrictions, and socio-political tensions. After a short period of disproportionate increase in catches immediately following the dystrophic crisis of 2016, since 2022 landings have declined sharply, with fishers reporting losses of up to 80 - 90% (García-Sánchez, 2024; Salas, 2024a; Gómez et al., 2025). Although no peer-reviewed studies have yet confirmed the underlying causes, both fishers and scientists from national scientific institutes attributes this collapse mainly to anoxic conditions generated by severe eutrophication events between 2019 and 2022, which led to mass fish mortalities and recruitment failure). Recovery is expected to take 5-15 years, but only if the agricultural nutrients inputs are effectively reduced (Salas, 2024b).

Political discourse surrounding the management of Mar Menor frequently reflects broader national and regional policy dilemmas, particularly the conflicts between regional and national governments of different political persuasions, and the challenge of balancing between economic progress and environmental sustainability.



The future of small-scale fisheries in the Mar Menor is contingent upon effectively managing environmental, economic, and social challenges that shape the lagoon



In recent years, governance of the Mar Menor has seen notable developments driven by strong community-led social and scientific initiatives aimed at restoring the lagoon's health, which have fostered new alliances among government bodies, NGOs, and the fishers, and academic institutions (Martínez Fernández, 2022). These initiatives, together with intensified campaigns for stricter environmental regulations to mitigate nutrient run-off from agriculture – recognised as the primary cause of eutrophication – led to the landmark recognition of the Mar Menor as the first ecosystem in Europe to be granted legal personality under Spanish law (Law 19/2022). This legal status enables the lagoon to exercise its own rights through newly created representative and scientific bodies (Vicente & Salazar, 2024; Rehnstrom, 2025). However, the situation remains uncertain, as proposed legislative reforms currently under debate in the Regional Assembly may significantly weaken the scope of existing protective measures.

The future of small-scale fisheries in the Mar Menor is contingent upon effectively managing environmental, economic, and social challenges that shape the lagoon. Integrated approaches that address both the symptoms and root causes of ecological degradation are essential to ensure the sustainability of the fishery and the well-being of local communities. These challenges, however, also raise fundamental questions of fairness, legitimacy, and equity, making it necessary to analyse the case of the Mar Menor through the lens of justice.

Justice in context

Distributive justice

The Integral Management Plan for the Protected Areas of the Mar Menor and the Mediterranean Coastal Strip of the Region of Murcia (Consejo de Gobierno de la Región de Murcia, 2019) establishes protected spaces and regulates access and activities within the Mar Menor to preserve its natural values. This includes limitations on access to certain areas and the management of recreational and tourist activities, which can restrict traditional use by local fishing communities, thus unevenly affecting different groups of stakeholders. As intensive agriculture and urban development in surrounding areas have significantly contributed to the eutrophication of the Mar Menor, adversely affecting the water quality and thus the fishing resources available to local communities, the main constraints on traditional fishing practices stem from ecological degradation. This situation leads to an imbalance between the environmental costs incurred and the benefits generated from these activities (Martínez-Fernández, 2022; García-Sánchez, 2024).

Justice in context

Types of justice:

- **Distributive**
- **Social**
- **Economic**
- **Market**
- Infrastructure/wellbeing
- **Regulatory**
- **Procedural**
- **Environmental**
- COVID-19 related
- Other

Social justice

Extensive agricultural activities, including not only large agro-industrial farms forced under plastic, generally owned by large investment funds, operated through temporary employment agencies and with no local presence, but also many pig farms (TRAGSATEC, 2019) and their impact on the Mar Menor have disproportionately affected small-scale fishers and local communities whose influence in policy discussions is significantly smaller than other stakeholders. These groups suffer from environmental degradation caused by nutrient runoff, which has not only harmed the marine ecosystem but also their economic livelihood and cultural practices. While both the regional and national governments have implemented regulations aimed at protecting the Mar Menor and its natural resources, most measures so far have failed to address the root causes of environmental degradation and have barely considered the socio-economic repercussions on local fishing communities. There is a noticeable gap in the influence and advocacy between well-funded agricultural sectors and less economically powerful sectors such as local fishers (Boix-Fayos et al., 2023), who struggle to exert equal influence in policy discussions. Environmental regulations designed to reduce the pollution have been undertaken with varying degrees of effect, yet their enforcement and the distribution of their impacts raise concerns about social justice. The primary beneficiaries of these regulations often appear to be sectors other than the traditional users of the Mar Menor, such as tourism and large-scale agro-industrial companies (most of them multinationals), which can more easily absorb or pass on the costs of compliance.

Economic justice

Eutrophication caused mostly by the excess of nutrients from agricultural and livestock activities has significantly degraded the Mar Menor, impacting its biodiversity and fish populations on which small-scale fishers critically depend for their livelihoods. The conservation and management measures planned to recover and protect the Mar Menor ecosystem include restrictions that can limit traditional fishing activities. While other sectors, such as tourism and agriculture, may be reaping substantial economic benefits from the Mar Menor – either directly from its resources and location or indirectly by externalizing environmental costs –, recent regional aid schemes reached only part of the fleet and were regarded as insufficient by the fishing sector to offset the magnitude of their losses (Noticiero Mar Menor, 2024). As a result, many fishers anticipate a reduction in fleet size, which would further undermine the viability of small-scale fisheries. In practice, this situation reinforces a dynamic in which fishers themselves bear the greatest share of the economic costs generated by the lagoon's degradation. This imbalance indicates a clear lack of economic justice, where the costs of marine degradation and conservation measures fall mainly on the fishers.

Market justice

The negative perception of the quality of fish from the Mar Menor due to its environmental condition could directly affects market access for local fishers. This could potentially lead to the stigmatization of these products, which could represent a significant market barrier for small-scale fishers, even if their products meet food safety standards. From a competitive standpoint, fishers from the Mar Menor might find themselves at a disadvantage compared to other producers who do not face similar stigmas.

Justice in context

Regulatory & procedural justice

Fishers have been reporting a problem of lack of participation in decision-making processes, expressing concern about the absence of dialogue and of an inclusive process in which they can voice their opinions and concerns (García-Sánchez, 2024).

Environmental justice

Intensive agriculture and livestock in the areas surrounding the Mar Menor have significantly contributed to the eutrophication of the water body, causing an increase in nutrients that negatively affect fish populations. The resulting eutrophication from excessive nutrients has deteriorated water quality, compromised biodiversity and directly affected the availability of healthy fishing resources for local fishers. Although management measures have been proposed to mitigate these environmental impacts, there are concerns about their effectiveness in restoring the health of the ecosystem and providing adequate compensation to the affected communities (Martínez-Fernández, 2022; Salas, 2024a; Salas 2024b).

Dealing with Injustice

Distributive justice

The Regional Government Action Plan for the Mar Menor (issued in 2024) and the Framework of Priority Actions for the Recovery of the Mar Menor (led by the central government and updated in 2024) include measures aimed at the agricultural and urban development sectors, which have significantly contributed to the deterioration of water quality, and aim to address the imbalance between environmental costs incurred and the benefits generated by the different sectors. However, both plans differ in the nature and scope of the proposed measures, and few initiatives have attempted to jointly prioritise the measures issued from them based on their expected effects on the environmental status of the lagoon (but see López-Ballesteros et al., 2023). The main measures that have already been implemented include: purification and sanitation systems and facilities; sanctions on illegal irrigated crops; disconnection and interruption of water supply to illegal irrigated crops; publication of the censuses of users of the Campo de Cartagena groundwater body; sanctioning procedures for prohibited polluting activities or discharges; and control of livestock farms. However, the measures implemented so far are not achieving yet the expected results in terms of restoring the environmental and trophic status of the lagoon (Oosterbaan et al., 2025).

Definition of small-scale fisheries

Small-scale fisheries ('artes menores') are defined as artisanal fisheries with small boats (approximately less than 12 m long), operating close to shore with a crew of around 2-3 people. Most common gears include gillnets, bottom longlines and traps. This definition is provided to classify different types of fisheries according to Consejería de Agua, Agricultura, Ganadería y Pesca & Dirección General de Ganadería, Pesca y Acuicultura.

Dealing with Injustice

Social justice

The unequal influence of different economic and social sectors in political discussions and decision-making has led to considerable social mobilization. Numerous initiatives led by NGOs such as ANSE, Ecologistas en Acción, Greenpeace, Pacto por el Mar Menor, S.O.S. Mar Menor, and WWF have been undertaken to improve the environmental status of the Mar Menor, which may indirectly benefit social justice for small-scale fisheries. These initiatives have primarily focused on addressing the eutrophication linked to intensive agriculture and on enhancing transparency and public participation. Driven by strong social demand at both regional and national levels, they have included large-scale demonstrations that exerted public pressure on public authorities. Among their most notable achievements was the approval of a Legal Personality to the Mar Menor Lagoon and its basin (Jefatura del Estado, 2022; Mar Menor Persona Legal, 2022; Pacto por el Mar Menor, 2022; Vicente & Salazar, 2024). In the words of its main proponent, Dr Teresa Vicente, professor of law at the University of Murcia and winner of the 2024 Goldman Prize, this important milestone has meant “the recognition by positive law of a new ethic, a new theory of justice, which is ecological justice”.

However, the intense media attention on this environmental issue has also facilitated the spread of narratives that downplay the role of intensive agriculture on the degradation of the Mar Menor. In particular, lobbying groups, supported by agricultural interests, have promoted the view that eutrophication is primarily attributable to wastewater from urban areas rather than to nutrient runoff from agricultural lands. Such narratives are often disseminated through sponsored content in traditional and social media frequently accompanied by selective or distorted data.

Economic & market justice

Economic support for small-scale fishing in the Mar Menor comes from national and regional programmes. National measures (Vicepresidencia Tercera del Gobierno, Ministerio para la Transición Ecológica y el Reto Demográfico, Gobierno de España, 2024), include temporary stoppages for environmental incidents; call for funding from the European Maritime and Fisheries and Aquaculture Fund; an experimental oyster hatchery aiming at the purification of lagoon waters; and research on eel populations. Regionally, Murcia has offered compensation for reduced catches—e.g., €342,000 in 2024 for 35 vessels of the ‘Cofradía de Pescadores’ (Fisher’s Guild) of San Pedro del Pinatar for losses from 2021–2023 – and aid tied to seasonal closures (BORM, 2024; Noticiero Mar Menor, 2024). Other actions focus on promoting fishing heritage and collaborating with the ‘Cofradía’ on marine fauna recovery. Despite these efforts, support remains limited compared to the sector’s losses.

Regulatory & procedural justice

The Government of Spain has initiated a public information and participation process through coordination meetings and working groups with social actors and public institutions (Vicepresidencia Tercera del Gobierno, Ministerio para la

Dealing with Injustice



In 2024, the Inter-administrative Commission of the Mar Menor was established as a coordinating body for public policies affecting the lagoon, bringing together the central government, the regional government, and the eight municipalities within the 1,270-km² watershed (Consejería de Medio Ambiente, Universidades, Investigación y Mar Menor, 2024a; La Verdad, 2024). That same year, regulations were approved to define the composition and functioning of the Interdepartmental Commission of the Mar Menor, which coordinates across departments of the Autonomous Community (Consejería de Medio Ambiente, Universidades, Investigación y Mar Menor, 2024b; La Verdad, 2024).



Regulatory & procedural justice [cont.]

Transición Ecológica y el Reto Demográfico, Gobierno de España, 2024). At the regional level, new participatory and collaborative bodies are being planned (Consejería de Medio Ambiente, Universidades, Investigación y Mar Menor, Dirección General del Mar Menor, 2024c). The Social Participation Committee, created in 2017, serves as a working group tasked with gaining knowledge of the ecological status and evolution of the Mar Menor and evaluating the actions required for its recovery. It integrates social, economic, and neighbourhood perspectives into decision-making and oversees compliance with the Comprehensive Management Plan for protected areas of the Mar Menor and the regulations and plans approved in this area, as well as the policies applied in the Mar Menor vicinity (Consejería de Agua, Agricultura y Medio Ambiente, 2017).

Most recently, in May 2025, three new committees were created – under the law recognising the legal personality of the Mar Menor – to strengthen the governance of the lagoon (Roda, 2025): an independent Scientific Committee to provide technical advice and propose recovery measures; a Monitoring Commission (the “Guardians of the Mar Menor”), composed of municipal and sectoral, including fishers; and a Committee of Representatives, which includes central and regional government members as well as civil society, notably those behind the Popular Legislative Initiative, to channel proposals and monitor compliance with the recently recognised rights of the Mar Menor.

Environmental justice

The Mar Menor has been the focus of extensive scientific research carried out by institutions such as the Universities of Murcia, Polytechnic of Cartagena and Alicante, the Spanish Institute of Oceanography (IEO-CSIC), the Centre of Soil Science and Applied Biology of Segura (CEBAS-CSIC), the Murcian Institute of Agricultural and Environmental Research and Development - IMIDA, and the Geological and Mining Institute of Spain (IGME), as well as several private consultancies. Research has addressed a wide range of topics, including geology, hydrogeology, geomorphology, biology, ecology, fishing and other socio-economic aspects of the coastal lagoon and its surrounding areas. As a result, the Mar Menor is among the best-studied lagoons worldwide, providing a robust scientific foundation for identifying and implementing effective solutions to its environmental and social challenges.

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Photo: Small-scale fishing in the green waters (once oligotrophic) of the Mar Menor, Mar Menor lagoon, Spain. 2023 © José A. García-Charton



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