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NEW CHALLENGES FOR CITIES IN THE TWENTY-FIRST CENTURY

Regenerative Design - Climate Adaptation & Mitigation
Circular Economy - Citizen Agency - Urban Livability

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Exploring governance challenges in coastal and marine tourism. A comparative analysis of European case studies

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Abstract

The increasing attention to land–sea interactions in spatial planning highlights persistent difficulties in integrating terrestrial and maritime governance, particularly in tourism-intensive coastal areas where environmental protection and economic development collide. This article investigates how such tensions are addressed through maritime spatial planning, focusing on the recently adopted Italian Maritime Spatial Plan and its application in the Friuli Venezia Giulia region. The study adopts a qualitative research design combining thematic analysis of policy documents with a comparative examination of three coastal and marine contexts: Port-Cros National Park in France, Puck Bay in Poland, and the island of Crete in Greece. These cases are used to explore how different institutional arrangements manage tourism–environment trade-offs across the land–sea interface. The findings show that integrated and participatory governance arrangements, as observed in Port-Cros, support adaptive management of tourism pressures, while fragmented institutional settings, as in Puck Bay, hinder coordination and enforcement. The case of Crete highlights the limitations of sectoral planning in the absence of a fully operational maritime spatial planning framework. The article concludes by discussing implications for the implementation of maritime spatial planning in Friuli Venezia Giulia, emphasizing the role of institutional coordination, participation, and administrative capacity.

Keywords

Land-sea interactions; Maritime spatial planning; Coastal and marine tourism; Environmental protection; Friuli Venezia Giulia

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1. Introduction

The growing competition for maritime and coastal spaces, driven by sectors such as navigation, fisheries, tourism, energy production, and ecosystem conservation, highlights the need for an integrated and cross-sectoral planning framework (Kidd et al., 2019). In this context, Maritime Spatial Planning (MSP) has been developed as a governance tool to balance competing interests while advancing sustainable development objectives (Kidd et al., 2020). Nevertheless, the multi-sectoral and dynamic nature of marine environments often generates spatial, political, and administrative tensions (Flannery et al., 2020). Moreover, there is increasing recognition of the need to coordinate terrestrial and marine planning efforts, particularly through Integrated Coastal Zone Management (ICZM), Land-Sea Interactions (LSI) and MSP (Portman, 2011). Despite extensive policy development, comparative evidence on how these instruments jointly govern tourism–environment trade-offs remain limited (Balestracci et al., 2025).

ICZM represents one of the first approaches to coastal and marine governance. However, ICZM approach has traditionally prioritized land-based pressures over marine (DG MARE, 2020; Kidd et al., 2019).

MSP emerged later as a response to increasing demands for marine space and the need to organize maritime activities in a sustainable way (Douvere, 2008; Ehler & Douvere, 2009). As a spatial governance instrument, MSP seeks to allocate maritime areas to different uses while balancing environmental, economic, and social objectives (Ehler & Douvere, 2009; Kidd et al., 2020). In contrast to ICZM, MSP focuses primarily on optimize the marine environment and minimize sectoral conflict (Pyć, 2022). The European MSP Directive (2014/89/EU) has formalized MSP as a mandatory planning tool (Innocenti & Musco, 2023; Tocco et al., 2024). In recent years, Member States have developed marine plans, but given their recent adoption remains limited (Jones et al., 2016; Morf et al., 2022; Papageorgiou, 2016).

In this context, LSI has gained increasing attention for its focus on land–sea interconnections, serving as a bridge between ICZM, MSP, and terrestrial spatial planning (DG MARE, 2020; Pikner et al., 2022; Bassan et al., 2020). LSI generally refers to the natural processes and socio-economic relationships that occur across the land–sea interface. Natural interactions include bio-geo-chemical processes meanwhile the socio-economic interactions involve dependencies between marine activities and land-based infrastructures (Kidd et al., 2019; Bassan et al., 2020). These socio-economic dimensions are particularly evident in maritime transport corridors and port–city systems, where infrastructure choices and accessibility patterns progressively reshape coastal regions and their land–sea connections (La Rocca, 2009). Thus, LSI encompasses complex, interconnected dynamics that interdisciplinary and cross-sectoral collaboration (Innocenti & Musco, 2023; Morf et al., 2022; Tocco et al., 2024).

Coastal zones are key areas for the integration of MSP and terrestrial spatial planning (Glavovic, 2013; Pikner et al., 2022, Singh et al., 2021). As development hotspots, they concentrate tourism, commerce and industry, intensifying spatial competition and generating strong urban identities and complex land–sea dynamics (Bassan et al., 2020; Innocenti & Musco, 2023; Tocco et al., 2024). Among these, tourism is a major driver shaping land–sea interactions, yet its rapid and often weakly regulated expansion has produced significant environmental impacts. In particular, nautical tourism materializes these land–sea interactions through small marinas, which operate as contact points between coastal settlements and marine space (Bove & Mazzola, 2023). This creates a paradox: tourism sustains local economies but simultaneously strains natural resources, while depending on high environmental quality for its own viability (Buckley, 2012).

The present article reflects on the Italian Maritime Spatial Plan (MSP-ITA) adopted in 2024. It focuses on the Northern-East areas of the Adriatic Sea which are included within the Unit Planning Area 01 (MIT, 2024) and the Marano-Grado Lagoon in Friuli Venezia Giulia (FVG). The FVG region combines valuable lagoon and coastal ecosystems with tourism activities in the Marano–Grado area, making it a case for examining these dynamics (Silvestri et al., 2013). The comparison with other European coastal and marine areas is used to identify governance solutions that can be adapted and applied to the Marano–Grado Lagoon, particularly in terms of

managing tourism–environment trade-offs. This research is part of the iNEST (Spoke 8, RT4: integrated land-sea maritime and spatial planning). This Italian case is embedded in a broader European discussion on how to integrate terrestrial and marine planning.

There is growing recognition that such integration is needed to address cumulative pressures, competing uses, and cross-scale dynamics at the land–sea interface (Kidd et al., 2019). Against this background, the research asks: (1) how different governance arrangements in European coastal and marine areas address the tensions between tourism development and environmental conservation across the LSI; and (2) what lessons can support the implementation of MSP-ITA in Friuli Venezia Giulia, with a specific focus on the Marano-Grado Lagoon.

The article is structured in three main parts. Firstly, the methodology section. Secondly, the results section examines the guidelines and objectives set out in the MSP framework for the FVG region, followed by the presentation of the three selected case studies. In conclusion, the main findings are discussed, identifying common challenges and proposing recommendations for enhancing the integration of terrestrial and maritime planning.

2. Methodology

2.1 Research design

This study adopts a qualitative multiple-case study design, combining thematic literature analysis to explore how LSI are governed at the intersection of maritime governance, environmental protection and tourism. The research follows a three-step process.

First, a broad literature screening identifies studies addressing MSP, ICZM, protected areas, coastal tourism and land–sea interactions. Second, only contributions with explicit case studies are retained.

Third, the analysis focuses on sites where tourism and environmental protection are drivers of pressure or conflict, prioritizing those with more extensive literature to enable in-depth reconstruction and comparison of governance arrangements, including with the FVG context.

2.2 Thematic literature analysis and case selection

The literature review began with a Scopus search of peer-reviewed studies, using three keyword combinations: (i) "maritime spatial planning" AND tourism AND conflict; (ii) "land-sea interactions" AND tourism AND marine protected area; (iii) "Natura 2000" AND coastal AND tourism AND conflicts. Only documents published after 2014 were kept, in order to work in the period opened by the EU Directive on MSP (2014/89/EU).

Only European coastal and marine contexts were included, to ensure comparability with the Italian case. This first screening yielded 67 papers, which were narrowed down through title and abstract review to 23 case-based studies with clearly defined empirical sites. These were read in full and further filtered by applying two criteria: the site had to have a formal conservation status in a coastal or marine context; tourism or recreation had to be clearly identified as a primary source of pressure or conflict. This led to five papers which are summarised in Tab.1.

Out of the five papers, three were retained as core comparative cases, while two were used as supporting examples, as one (Luján Climent et al., 2025) deals with multiple pressures and governance innovation in a dispersed wetland system, and the other (Tubío et al., 2021) provides a state-of-the-art review, with limited detail on concrete tourism–protection conflicts.

This first stage was followed by a targeted search of grey literature through Google Scholar, including EU directives and guidelines, national and regional plans, and park and Natura 2000 management documents, linked to the selected cases.

Reference	Focus	Context	Main findings	Conflict type
Tsilimigkas & Rempis (2017)	EU MSP–terrestrial planning interaction; synergies and mismatches	Crete (Greece); five coastal sub-areas.	Tourism, ports, aquaculture and energy generate governance conflicts due to overlapping mandates; need for integrated land–sea planning	Sectoral conflicts (tourism/ports/aquaculture/energy vs protection); policy overlap
Luján Climent et al. (2025)	Governance innovations in coastal-wetland management	Valencia (Spain); six protected coastal wetlands	Conservation–production tensions under climate stress, exacerbated by fragmented governance, rigid regulation and unstable funding	Conservation vs agriculture/urbanisation/tourism; coordination failures
Cadoret (2021)	Conflict histories and acceptability of visitor management	France; Porquerolle (Port-Cros NP)	Visitor pressure fuels conflict; acceptance linked to trust, tolerance thresholds and legitimate enforcement	Visitor pressure vs conservation; distributive and procedural justice conflicts
Tubío et al. (2021)	Ecosystem services to link conservation and sustainable business	Galicia (Spain); Rías Baixas Natura 2000 marine area	Natura 2000 enables green business models but requires coordinated governance and strong stakeholder engagement	Conservation vs intensive use; extractive vs green transition pathways
Piowarczyk & Wróbel (2016)	Legitimacy of Natura 2000 marine governance	Puck Bay (Poland); two marine Natura 2000 sites	Overlapping responsibilities, low trust and formalistic participation undermine legitimacy; need for accountability and MSP integration	Fisheries–tourism–conservation conflicts; local vs central authority tensions

Tab.1 Subset of key studies

2.3 Comparative framework

The three case studies represent (Fig.1) contrasting land–sea governance configurations which enables a structured comparison of how tourism–conservation tensions are managed under different institutional arrangements.



Fig.1 Keymap of the selected case studies

The comparison is based on coastal and marine governance research (Partelow et al., 2020; Stojanovic & Gee, 2020; Tocco et al., 2024; Schlüter et al., 2020). We use “modes of governance” as a shared vocabulary to describe the main steering logics found in each case, considering: (1) collaborative/networked governance; (2) market-based governance; (3) adaptive governance; and (4) transformative governance. They help interpreting steering mechanisms without forcing cases into a single category. We focus on four simple questions: which rules exist, who is involved, how coordination works, and how decisions are implemented and enforced over time (Stojanovic & Gee, 2020). These questions are operationalized through an analytical grid applied to each case and to MSP-ITA for the FVG maritime area.

3. Italian maritime spatial planning and the Friuli Venezia Giulia’s tourism-environment LSIs

The Italian Maritime Spatial Plan follows an ecosystem-based approach, balancing environmental, economic, social and security objectives through strategic guidance rather than prescriptive zoning (MIT, 2024). A technical committee, comprising representatives from relevant national ministries and delegates from each participating region, was established to oversee the plan’s development (Ramieri et al., 2024).

Environmental protection, landscape preservation, and cultural heritage conservation fall under the central government’s broad legislative authority. In contrast, the regional governments hold joint legislative powers concerning ports, maritime transport, energy production and distribution, spatial planning, and the promotion of cultural and environmental resources. Moreover, regions possess exclusive legislative jurisdiction over fishing, aquaculture, coastal defense, and tourism (Ramieri et al., 2024). Regarding Natura 2000 areas, regional authorities directly influence the management of protected areas (MATTM, n.d.).

Planning Unit 01 (A/1_01 P) of the MSP covers the maritime and coastal zone between the mouths of the Tagliamento and Isonzo rivers, including the Marano-Grado Lagoon (Fig.2). The area is characterized by high geomorphological and ecological significance, hosting several Natura 2000 sites. From an administrative standpoint, governance is highly fragmented: most of the lagoon falls within the municipalities of Marano Lagunare and Grado, while smaller portions lie within neighboring municipalities or are classified as maritime state property (Silvestri et al., 2012). These transitional environments are subject to fragile ecological balances and considerable anthropogenic pressures, where seasonal tourism exerts substantial strain on the ecosystem (ISPRA, 2018). Lignano Sabbiadoro and Grado attract large volumes of visitors, resulting in over one million tourist stays annually despite their modest resident populations (ISTAT, 2024). This incoming tourist flux intensifies pressures on local infrastructures and fragile ecosystems. Tourism, while providing essential economic benefits, has prompted environmental repercussions. On land, increased tourism demand has led to the expansion of accommodation facilities and second homes, intensifying urbanization (FVG, 2012). At sea, activities such as recreational boating contribute to habitat disturbance (Silvestri et al, 2013). Additionally, the construction of stone protective structures to mitigate erosion has led to substantial landscape alterations (FVG, 2012).

In response to these challenges, the plan designates the UPA1_01 primarily for coastal and maritime tourism, alongside environmental protection and natural resource management (MIT, 2024). The MSP-ITA acknowledges the socio-economic relevance of seaside tourism hubs like Lignano Sabbiadoro and Grado and seeks to support complementary activities such as sustainable fishing.

While comprehensive, the MSP-ITA acts more as strategic guidance than binding regulation. Its decentralized structure assigns implementation to regions like FVG, raising key planning challenges tied to local environmental and socio-economic conditions.

In addition to tourism pressures, FVG faces climate-related threats such as sea level rise, erosion, and land subsidence (ARPA FVG, 2024), as well as cumulative impacts on biodiversity and habitats from overfishing,

port development, and coastal urbanization (Barbanti et al., 2015). Ultimately, the success of MSP-ITA strategies depends on effective regional action.

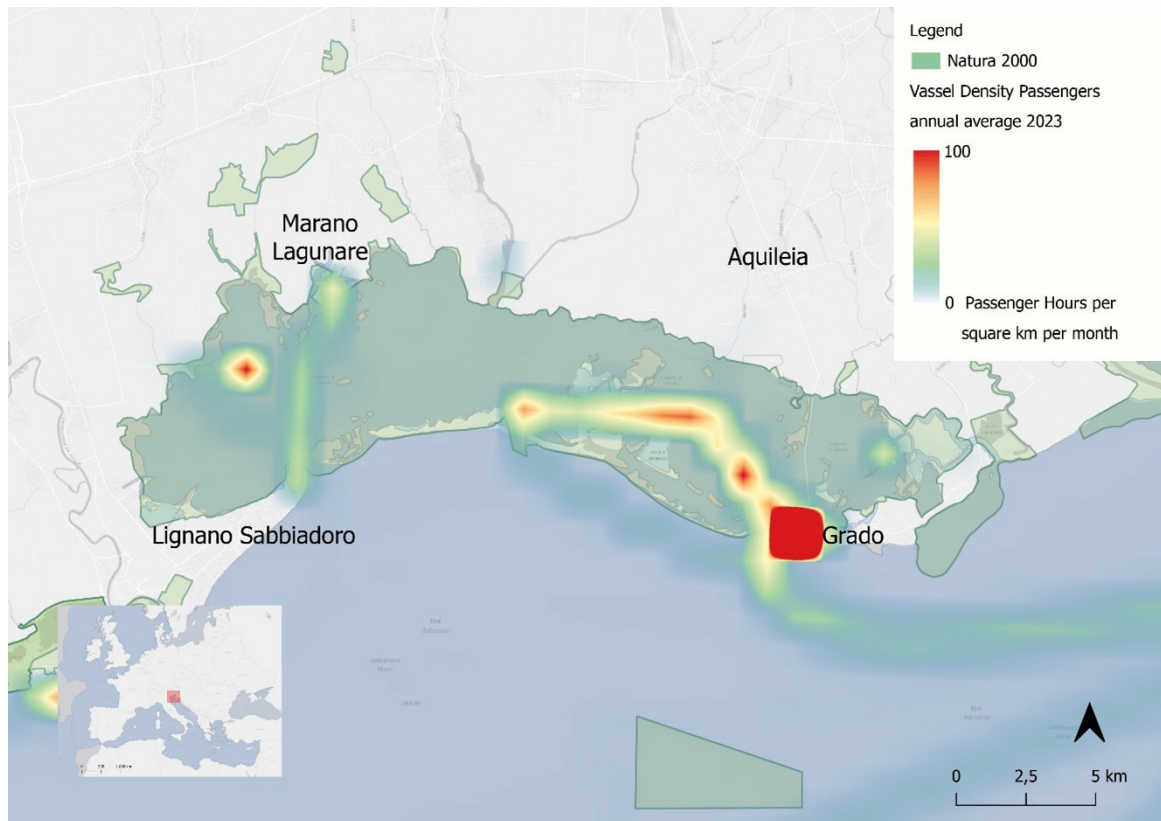


Fig.2 Study area: Marano-Grado Lagoon, Friuli Venezia Giulia, Italy

4. Management approaches to LSI: case studies on integrating maritime, coastal, and terrestrial planning with tourism development

4.1 Case study 1: France, Port-Cros National Park, Balearic Sea

Port-Cros National Park (PCNP) is located off the southern coast of France, and includes an archipelago that forms part of the Natura 2000 network (Fig.3). This protected area combines terrestrial and marine ecosystems and creates a characteristic Mediterranean land-sea landscape, where coastal reliefs, islands and underwater habitats are strongly interconnected (Barcelo et al., 2018; Port-Cros National Park, n.d.). The ecosystem hosts key species such as *Posidonia oceanica*, which is essential for marine biodiversity and coastal protection (Cadoret, 2021).

The governance framework of PCNP has progressively evolved since the mid-20th century, with its official creation in 1963 encompassing the islands of Port-Cros, Bagaud, La Gabinière, and Le Rascas, along with part of the Provençal coastline (Deldrève & Michel, 2019; Boudouresque et al., 2013; Barcelo et al., 2018). In 1964, a Scientific Council (SC) was established to define research priorities necessary for evaluating actual and potential human impacts and to guide management (Boudouresque et al., 2013). The governance framework expanded in 1971 when Porquerolles was incorporated into PCNP following state acquisition (Barcelo et al., 2018). Between 1996 and 2001, PCNP became part of the European Natura 2000 network, strengthening its biodiversity preservation objectives (Parc National de Port-Cros, n.d.).

During this period, the first visitor flow studies were conducted to develop strategies balancing environmental conservation with public accessibility (Deldrève & Michel, 2019; Le Berre et al., 2013).

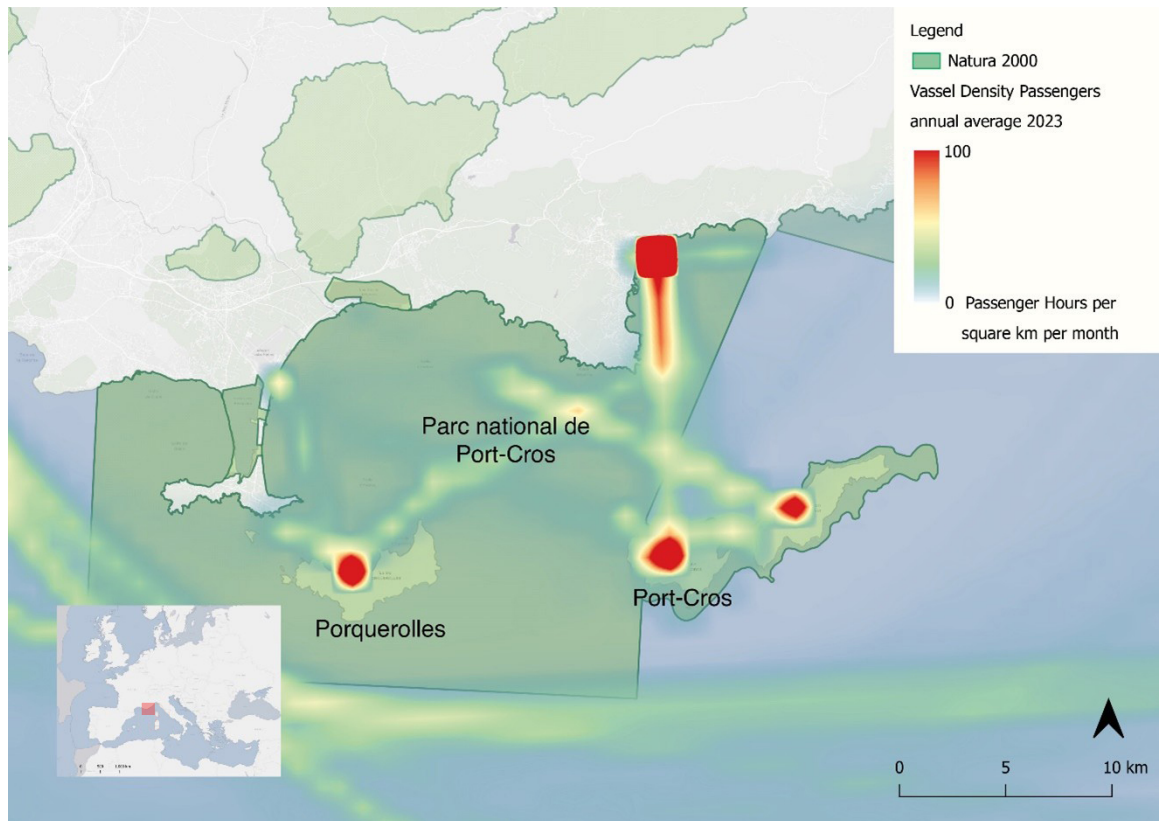


Fig.3 Map depicting the case of Port-Cros National Park, Provence-Alpes-Côte d'Azur, France

These early studies already framed tourism as a direct pressure on the coupled land–sea system. To address tourism issues, PCNP adopted several governance measures. In 2002, two tourism flow observatories were established to gather data on visitor numbers, with data collected between 2002 and 2010 indicating stable maritime arrivals, averaging 4,000 daily landings in Porquerolles during the summer, surging at 6,400 on peak days (Le Berre et al., 2013). The expansion of tourism has exceeded the ecological and social carrying capacity of the islands (Cadoret, 2021). Moreover, improved infrastructure, such as passenger ferries and widespread bicycle rental services, has increased accessibility, but has also intensified crowding, pressure on coastal paths and beaches (Cadoret, 2021). Additionally, regulatory interventions have been introduced, such as the designation of a "resource zone," where anchoring, artisanal and recreational fishing, mooring, and diving are strictly prohibited (Deldrève & Michel, 2019).

The governance framework shifted significantly in 2006 with the enactment of Law N° 2006-436, transferring maritime management authority from PCNP to state marine authorities, such as the *Délégation à la Mer et au Littoral* (DML) and the *Direction Départementale des Territoires et de la Mer* (DDTM), while PCNP assumed a facilitating role (Barcelo et al., 2018). The law reinforced the role of the SC in decision-making processes and introduced an informal *Self-Organized Governance Committee* (SOGC) composed of stakeholders to sustain participatory governance mechanisms (Barcelo et al., 2018). In 2012, the official integration of Porquerolles into PCNP further consolidated the park's administrative structure, expanding its protected area to include both terrestrial and marine core zones (Boudouresque, 2020).

Solutions adopted to manage the tourism pressure are based on a combination of collaborative governance and spatial management measures. Participatory, bottom-up mechanisms foster trust and enable concerted decision-making, integrating broader social (Barcelo et al., 2018; Deldrève, 2019). Spatial measures include regulating activities to protect marine habitats, such as *Posidonia* meadows, by prohibiting anchoring in sensitive zones and providing ecological moorings (Boudouresque et al., 2021). Fishing activities, both amateur and professional, are managed through specific charters and authorization systems, supported by monitoring

efforts (Barcelo et al., 2018; Boudouresque et al., 2021). Visitor pressure is managed through carrying-capacity approaches and observatory-based monitoring (Deldrève, 2019; Le Berre et al., 2013).

4.2 Case study 2: Poland, Puck bay, Baltic sea

Puck Bay, located within the Gulf of Gdańsk in northern Poland along the Baltic Sea (Fig.4), is an enclosed basin and a hotspot of Polish marine biodiversity (Węśławski et al., 2010; Zaborska et al., 2019). Within Puck Bay, two marine Natura 2000 sites have been designated as part of the European network for nature conservation (Piwowarczyk & Wróbel, 2016). In parallel, Puck Bay is a major tourist destination, with growing visitor numbers that stimulate the expansion of tourism-related infrastructure, encouraged by local investments and regulatory approvals (Wendt & Wiskulski, 2017). This growth generates multiple pressures both on land and at sea, including disturbance of wildlife due to unrestricted access to marine areas (Kistowski & Śleszyński, 2010) and increasing pressure on sensitive coastal habitats (Zaborska et al., 2019). Before the approval of the national MSP (2022), marine management was guided by the 1991 "Act on Marine Areas of the Republic of Poland and the Maritime Administration", while this act provided general guidelines, it lacked detailed spatial planning measures for conflict-prone areas (Pikner et al., 2022).

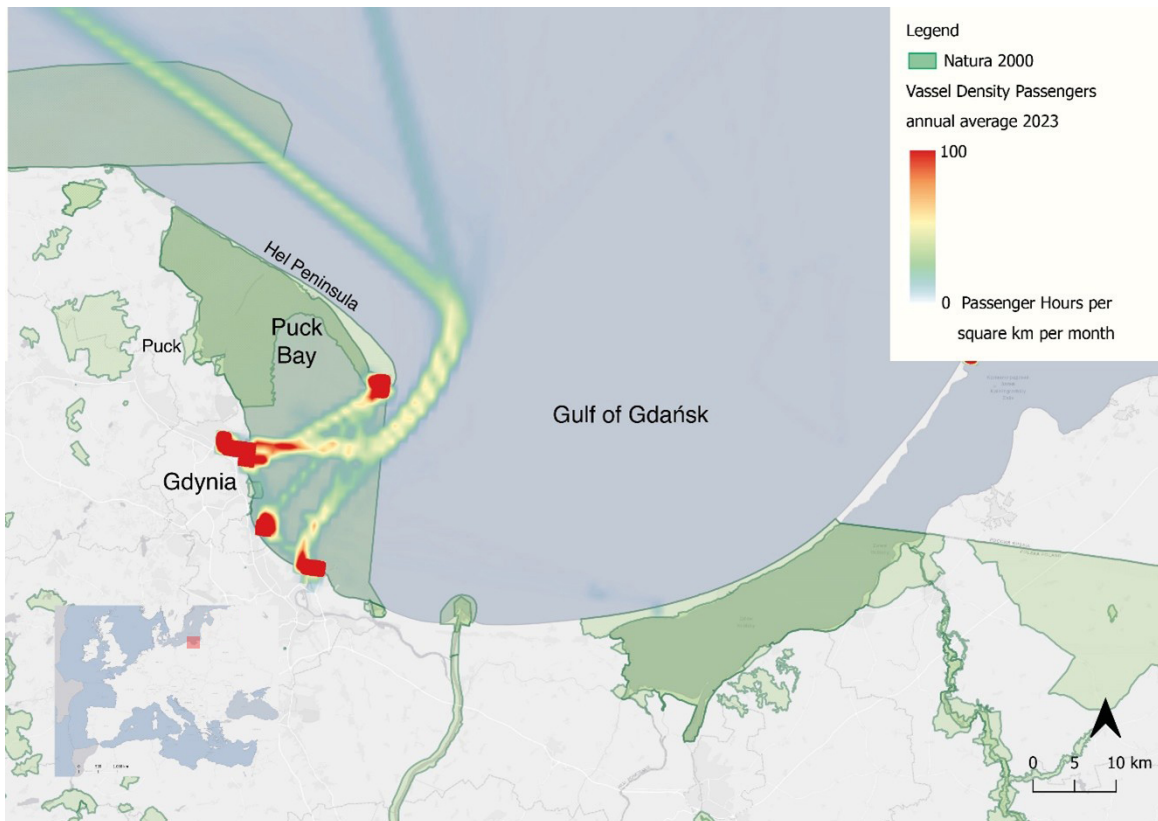


Fig.4 Map depicting the case of Puck Bay, Poland

Governance over the two marine Natura 2000 sites remains fragmented among multiple authorities, creating challenges in management, policy integration, and coordination between sectoral policies and conservation objectives across land and sea domains (Piwowarczyk & Wróbel, 2016). Unlike terrestrial Natura 2000 sites, which fall under the Minister of Environment and the General Directorate for Environmental Protection, marine Natura 2000 sites are under the jurisdiction of the maritime administration, which is subordinate to the Minister of Infrastructure and Development (Piwowarczyk & Wróbel, 2016). This fragmentation has consequently generated overlapping competencies between different state institutions (Morf et al., 2022). The Maritime Office in Gdynia, responsible for managing these marine areas, has developed spatial planning initiatives,

including a draft maritime spatial plan, though its effectiveness has been limited by regulatory delays. Meanwhile, the Regional Directorate for Environmental Protection and the Coastal Landscape Park influence marine conservation policies but lack authority over marine waters (Piwowarczyk & Wróbel, 2016). Despite the formal cooperation agreement between the Maritime Office and the Regional Directorate, marine and terrestrial planning in Poland remains disconnected, governed by distinct legislative frameworks. The current marine management policy follows a sectoral approach with case-based decision-making rather than an integrated strategy (Piwowarczyk & Wróbel, 2016). As a result, tourism–conservation conflicts are managed case by case, with limited capacity to address cumulative impacts. In this context, conflicts between tourism development, mobility pressures and conservation become difficult to manage, for example where recreational boating adds pressure on habitats and municipalities continue to enable tourism expansion in already constrained coastal areas (Wendt & Wiskulski, 2017; Kistowski & Śleszyński, 2010; Zaborska et al., 2019). At the same time, local municipalities actively support tourism, often framing it as environmentally friendly and avoiding strong restrictions, which further reduces the effectiveness of conservation measures even within designated Natura 2000 sites such as Puck Bay (Piwowarczyk & Wróbel, 2016). Ultimately, this institutional fragmentation and lack of full integration impact the legitimacy and effectiveness of Natura 2000 management in the region (Piwowarczyk & Wróbel, 2016).

4.3 Case Study 3: Crete, Greece, Aegean Sea

Greece has yet to implement a fully approved MSP, resulting in a fragmented legislative framework. However, sectoral plans for tourism, aquaculture, and other industries have been developed, incorporating strategies that address land-based, coastal, and marine considerations.

The Ministry of Environment and Energy oversees MSP at the national level, while regional and local authorities are responsible for implementing strategic and municipal-level plans to regulate spatial development and land use (Rempis & Tsilimigkas, 2021). In general, the Greek legislative system is divided into a strategic planning component, which takes place at the national and regional levels, while regulatory planning is assigned to the local level (Rempis & Tsilimigkas, 2021).

In this framework, Crete is among the largest islands in Greece (Fig.5), with a coastline of approximately 1,300 km and accounting for 6.3% of the national territory (Rempis & Tsilimigkas, 2021). The island shows strong north–south polarization: the northern coast concentrates population and development, while the south is more rural and agriculture-oriented (Rempis & Tsilimigkas, 2021).

Tourism is the main economic sector, dominated by seasonal, coastal tourism concentrated along the northern coast (Rempis & Tsilimigkas, 2021; Terkenli et al., 2007).

In Crete, the Regional Spatial Framework (RSF), initially adopted in 2003 and revised in 2017, addresses challenges such as urban expansion, coastal saturation, and environmental degradation (Rempis & Tsilimigkas, 2021). Tourism is concentrated in dense coastal hubs, land-use conflicts and impacts on fragile coastal ecosystems are especially acute (Rempis & Tsilimigkas, 2021; Rempis et al., 2018). So the RSF calls for more localized planning and frames MSP as a key lever for sustainable development (Rempis & Tsilimigkas, 2021). Additionally, the Special Framework for Spatial Planning and Sustainable Development for Tourism provides guidelines for tourism development while promoting alternative maritime tourism activities such as cruising, yachting, diving, and fishing (Rempis et al., 2018). Nevertheless, the legislative system is characterized by fragmentation, inconsistency, and a lack of strong, binding connections (Rempis & Tsilimigkas, 2021). As a result, interventions—primarily in coastal areas—are often carried out using ad-hoc methods that lead to considerable spatial impacts, along with significant environmental, social, and economic costs, as well as negative land-sea interactions (Rempis & Tsilimigkas, 2021). These weaknesses are particularly problematic in high-pressure coastal contexts such as Crete, where the combination of intensive tourism, uneven spatial development, and climate-related risks makes coherent land–sea governance essential (Rempis & Tsilimigkas,

2021; Vourdoubas, 2025). Implementation gaps persist, especially in translating national/regional aims into enforceable local and marine zoning measures (Tsilimigkas et al., 2020).

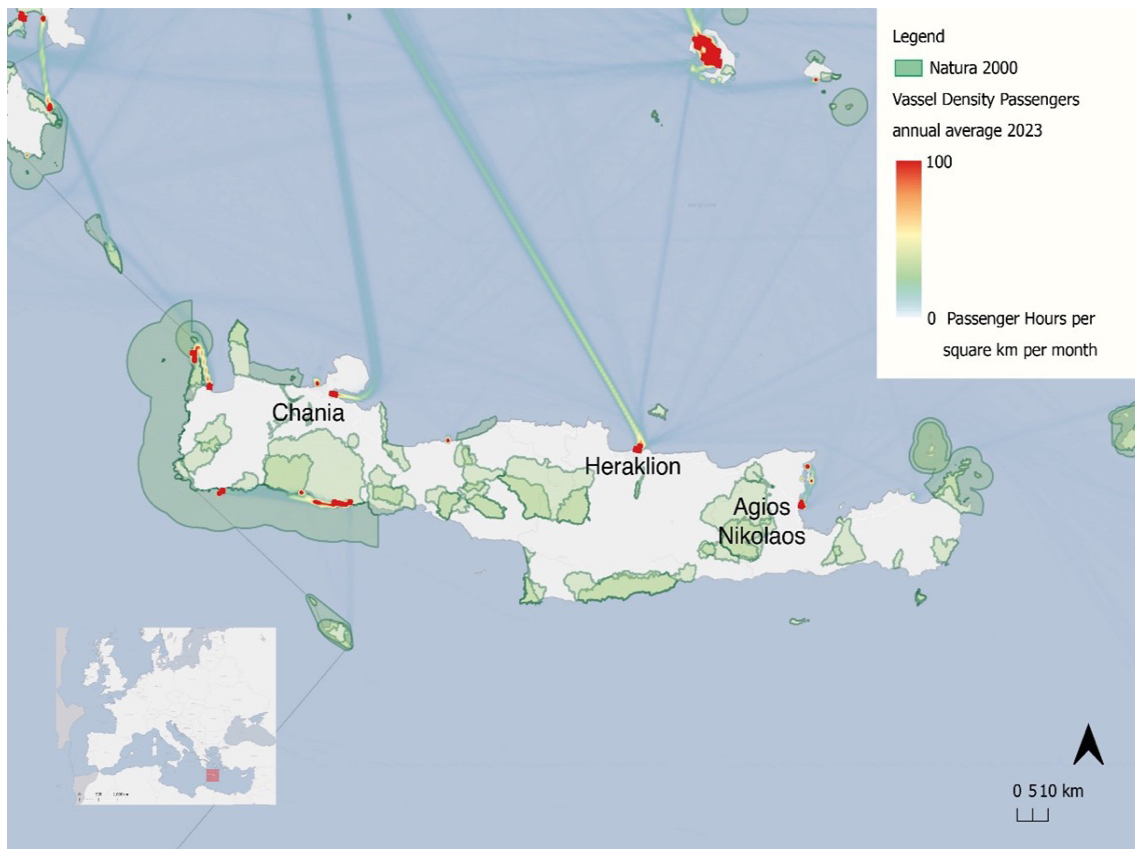


Fig.5 Map depicting the case of Crete, Greece

5. Discussion and conclusion

5.1 Comparative insights on governance models

The analysis of the selected case studies highlights how different governance approaches can either facilitate or hinder the integration of tourism development and environmental conservation in coastal and marine areas. The cases were analysed using a governance-mode framework, operationalised through Tab.2.

The case of PCNP shows strong collaborative/networked signals (a stable negotiation arena and co-produced rules) and clear adaptive signals (monitoring and iterative adjustment). The literature associates this model with negotiated rule-making and adaptive refinement (Barcelo et al., 2018; Deldrève & Michel, 2019; Boudouresque et al., 2021). Conversely, the Puck Bay case study points to governance difficulties linked to institutional fragmentation within and around Natura 2000 sites. Overlapping mandates across maritime and environmental frameworks hinder coordinated decision-making and enforcement (Piwowarczyk & Wróbel, 2016). The case is useful because it shows how “having plans” may coexist with weak interoperability between instruments and unclear responsibility for cumulative impacts along the coast.

Crete exemplifies pressures generated by large-scale coastal tourism. Studies describe an uneven spatial pattern, with tourism concentration in the north, which contributes to strong and localised land-use and infrastructure pressures (Rempis & Tsilimigkas, 2021). Sectoral planning and weak coordination exacerbate coastal saturation and environmental pressure (Rempis & Tsilimigkas, 2021). Reading through the model frames, Crete could be read as a market-driven steering context (tourism-led priorities) operating under weak enforcement and limited land–sea coupling.

	Port-Cros NP (France)	Puck Bay (Poland)	Crete – coastal area (Greece)
Institutional / legal setting	National park since 1963; Natura 2000 sites; Law 2006-436 reshapes maritime competences	Marine Natura 2000 sites; 1991 Marine Act; national MSP adopted 2022; split marine/terrestrial regimes	No fully approved MSP; strategic planning at national/regional level;
Main actors	Park Authority; Scientific Council; state marine authorities (DML, DDTM); municipalities; tourism and fisheries operators; residents	Maritime Office in Gdynia; Regional Directorate for Environmental Protection; Coastal Landscape Park; coastal municipalities;	Ministry of Environment and Energy; Region of Crete; municipalities; port authorities; tourism sector; other sectoral agencies
Main planning / management tools	Park management plan; zoning with "resource zone"; Natura 2000 measures; tourism flow observatories;	MSP for Polish marine areas; sectoral plans (fisheries, ports, conservation); local land-use plans; Natura 2000 management plan	Regional Spatial Framework (2003/2017); Sectoral plans (e.g. aquaculture); municipal land-use plans;
Participation and conflict management	Self-Organised Governance Committee; participatory mechanisms; negotiated solutions between conservation, tourism and locals	Limited structured participation; formal cooperation but weak stakeholder engagement; conflicts managed case by case	Mainly top-down procedures; ad-hoc negotiations in coastal hotspots;
Cross-sector / multi-level coordination	Park facilitates between marine authorities, municipalities and users; land–sea issues integrated in park planning	Strong institutional fragmentation; weak horizontal and vertical coordination; marine and terrestrial planning largely disconnected	Weak links between strategic and regulatory plans; poor integration of spatial, tourism and environmental policies;
Main land–sea conflicts / trade-offs	Tourism flows vs. ecological and social carrying capacity; beach and path crowding vs. habitat protection	Tourism growth and infrastructure vs. dunes and coastal habitats; recreational boating vs. wildlife and noise; congestion	Mass coastal tourism vs. fragile ecosystems; port and urban expansion vs. landscape and habitat protection;
Implementation, enforcement, revision of rules	Prohibition zones enforced (anchoring, fishing, diving); regulations adjusted using monitoring; governance framework revised after legal reforms and park extension	Regulations unevenly enforced; illegal or tolerated developments; MSP and Natura 2000 rules difficult to apply;	Plans revised slowly; frequent ad-hoc interventions in coastal areas; weak enforcement of spatial and environmental rules;
Key weaknesses / innovations in governance	weakness: high tourism pressure still near or beyond carrying capacity. Innovation: science-based, adaptive and participatory governance.	Weakness: institutional fragmentation, sectoral decision-making, poor land–sea integration; formal cooperation exists but remains insufficient for Natura 2000 governance	Weakness: fragmented legal system, ad-hoc coastal decisions, limited land–sea integration.

Tab.2 Comparative overview of the three case studies, structured according to the case-selection and analytical criteria described in the methodology

In conclusion, tourism–conservation tensions at the land–sea interface can be read in relation to how governance works in practice (Saunders et al., 2019; Partelow et al., 2020). Across the three cases, three patterns emerge. A first pattern concerns authority and decision boundaries. In PCNP, the protected perimeter is described as a relatively bounded decision arena. Here, the park authority combines spatial regulation with a stable negotiation arena (Barcelo et al., 2018; Deldrève & Michel, 2019; Le Berre et al., 2013). In Puck Bay and Crete, pressures concentrate along the coastal strip, but authority is more dispersed across agencies or split between strategic and regulatory tiers. This dispersal can produce governance "gaps" in steering cumulative impacts across land and sea (Piwowarczyk & Wróbel, 2016; Rempis & Tsilimigkas, 2021). From a polycentric perspective, the issue is less the number of actors and more whether interacting decision centres can align mandates and effects across levels (Partelow et al., 2020; Ostrom, 2010).

A second pattern concerns participation and legitimacy. PCNP approximates deeper participation through a relatively stable arena where users and local actors repeatedly engage in rule-making and trade-offs. This

arrangement is presented as supporting the acceptance of restrictive measures (Barcelo et al., 2018; Deldrève & Michel, 2019; Le Berre et al., 2013), but it also has limitations, as participation is uneven, demanding, and exposed to fatigue and power asymmetries (Barcelo et al., 2018). This aligns with critical MSP scholarship, which suggests that participation can improve transparency and reduce conflict, but can also reproduce exclusion when it remains shallow, procedural, or under-resourced (Gökmen, 2025). In Puck Bay and Crete, where decision-making is more fragmented and often channelled through sectoral or multi-tier procedures, participation tends to be less continuous and therefore less able to stabilise legitimacy over time (Piwowarczyk & Wróbel, 2016; Rempis & Tsilimigkas, 2021)

A third pattern concerns enforcement and administrative capacity. In PCNP, effectiveness is repeatedly associated with the combination of negotiated rules, monitoring, and credible sanctions (Barcelo et al., 2018; Deldrève & Michel, 2019; Boudouresque et al., 2021). In Puck Bay and Crete, enforcement problems appear more tightly linked to governance structure: fragmentation and unclear mandates complicate the coordination of inspection, data, and compliance across jurisdictions (Piwowarczyk & Wróbel, 2016; Rempis & Tsilimigkas, 2021). Overall, legitimacy alone is insufficient without administrative capacity (resources, staff, procedures, and coordination) (Gökmen, 2025). Across the cases, the key explanatory factor is the configuration of interacting decision centres across land and sea, and their ability to coordinate, learn, and enforce over time (Partelow et al., 2020; Ostrom, 2010). What ultimately matters is whether governance arrangements can clarify decision boundaries, sustain legitimacy through meaningful inclusion, and support enforcement through administrative capacity (Giovinazzi & Moretti, 2010; Pirlone et al., 2022).

5.2 From plans to practice: implications for MSP-ITA and FVG

Read through these governance patterns, the FVG case can be approached less as a question of “adopting MSP” and more as a question of institutional coupling at the land–sea interface. The first implication is that any pathway from MSP-ITA to local implementation may benefit from mapping decision-making centres and their influence on tourism–conservation trade-offs, including informal practices and “rules-in-use” (Partelow et al., 2020). This step can help reveal where authority is clear, where it overlaps, and where it may be absent. A second implication is to treat interoperability as a design problem. Rather than adding new plans, governance efforts could focus on the interfaces between MSP provisions, Natura 2000 management, and municipal land-use rules, so that spatial restrictions, licensing, and monitoring are mutually consistent. A third implication concerns legitimacy. If governance arenas remain episodic or purely consultative, participation risks becoming procedural and exclusionary, with predictable conflicts around access, restrictions, and uneven distribution of costs and benefits (Gökmen, 2025).

A fourth implication is to connect legitimacy to enforcement capacity early. Implementable outcomes require not only acceptance, but also resources and coordination across inspection, data collection, and compliance routines (Gökmen, 2025).

In practical terms, one enabling step could be to treat monitoring outputs as “boundary objects” that different actors can use to align decisions. For instance, GIS-based vulnerability and pressure mapping can help identify critical areas and support more transparent trade-offs, but its governance value depends on shared interpretation and updating, not on technocratic closure (Pagano et al., 2023). Finally, Trouillet’s critique suggests a caution for FVG: strengthening governance may require attention to the gap between planning narratives and institutional anchoring. Without clear mandates, interfaces, and capacity, MSP risks remaining a discourse of integration while sectoral dynamics continue to drive cumulative impacts (Trouillet, 2020).

5.3 Limits and future development of the research

This study has limitations that should be considered when interpreting the findings. First, it relies on a small, purposively selected set of cases, which supports analytical rather than statistical generalisation. Second,

evidence is primarily drawn from secondary sources (legal texts, plans, policy documents, and scientific/grey literature). Third, several planning and governance instruments discussed in the paper -including MSP-ITA-remain in evolving stages of implementation. Future research could strengthen and test the proposed governance patterns by triangulating document analysis with interviews and by extending the comparison to additional European regions.

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Image Sources

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