

The Future of Small-Scale Fishery Markets in the Mediterranean

*Social, Environmental, Economic
and Governance Aspects*

*Abstracts of the Symposium
Izola, 6 October 2020*





LabMAF

DEVELOPING A LABELLING SCHEME
FOR MEDITERRANEAN SMALL-SCALE
AND ARTISANAL FISH PRODUCTS

blueMed

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**The Future of Small-Scale Fishery Markets in the Mediterranean:
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Markets as Challenges and Opportunities for small-scale fisheries and the Mediterranean

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Abstract. The LabMAF project (Developing a Labelling Scheme for Mediterranean Small-Scale and Artisanal Fishery Products) was designed to explore the ways in which value can be given to the products of small-scale and artisanal fishers. The ultimate aim is to contribute towards a healthy, productive and resilient Mediterranean Sea that is better known and valued, in accordance with the vision of the BlueMed Initiative, which has funded the project under its scheme of Start-up Actions.

Small-scale and artisanal fisheries stand at a crossroads in many parts of the world, and their situation in the Mediterranean is no exception. For decades, they have represented an important element of coastal communities engaging in low-impact fishing activities, providing local supplies of fresh fish on a daily basis and forming an integral part of the cultural and social heritage. Although small-scale fisheries are known to exhibit high resilience and adaptability to economic and environmental fluctuations, recent literature shows that sharp declines in fish stocks and concomitant socio-economic repercussions are risking the multiple contributions provided by these fisheries.

The situation in which small-scale fisheries (SSFs) operate on the sea, and later in the post-harvesting phase, is impacted by a complex set of socio-economic, environmental and governance factors that seriously challenge the existence of SSFs in the Mediterranean and undervalue their multiple contributions. At the same time, a number of policy documents, such as Sustainable Development Goals (2015) and the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (2014) at the global level, and the Regional Plan of Action (2018) at the regional Mediterranean level, provide a renewed sense of optimism for SSF and their constitutive role in a sustainable future.

The project LabMAF was launched to disentangle the challenges and opportunities for sustainable SSF through the perspective of SSF markets. It retains the same focus on markets and bottom-up approaches, while suggesting interventions that could potentially be successful. The final report of the project, scheduled for December 2020, should provide a coherent narrative on both the past of the SSF markets and their innovative future outlook.

The contribution of stakeholders, through project events such as this Symposium, has been indispensable for the objective of the report. We are pleased to have created a forum for scientists, policy-makers, NGO managers and fishers to share and co-produce the necessary knowledge for a positive shift.

Mediterranean Small-Scale Fisheries Markets: Post-Pandemic Prospects

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Abstract. With the UN Sustainable Development Goals (SDGs) paving the research and policy trajectories for the next decade and beyond, a discussion on the sustainability of small-scale fisheries in the Mediterranean is timely, also to propel a conversation about the integrated role of social and natural science research needed to achieve these ambitious goals. The Lab-MAF Symposium has been organized precisely to discuss the sustainability of small-scale fisheries, the equation of which is determined by various interconnected systems including the community, the markets, the political economy, and other structures. Now with the COVID-19 bringing unprecedented market shocks on small-scale fisheries products both at national and export levels, immediate response for the post-pandemic era has become crucial. Without any contingency plans, fishing families have fallen short of revenue, facing increased debts and in extreme cases, became unable to sustain their livelihoods. In certain cases, however, the pandemic has served as a catalyst for change, with customers opting to buying seafood directly from the fishers, also via online platforms. In these dark times, it is becoming increasingly apparent that bottom-up innovation in small-scale fisheries markets can be a new front in resolving these challenges. It is precisely now amid a pandemic era where we should be reflecting on the need of investing concerted efforts and affirmative action towards such initiatives. However, this requires an overarching strategy that speaks to distributive justice in the allocation of fishing opportunities and access to markets (SDG 14b), that could be formalized through the Mediterranean Regional Plan of Action for Small Scale Fisheries (RPOA 2018–2028).



Can Fishing Tourism Constitute an Alternative to Traditional Small-Scale Fishing?

Highlights from a Case Study in the Greek Ionian Sea

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Abstract. Today, one of the most important challenges that the small-scale fishing (SSF) sector faces, is the decreasing income from the fishing activity and the increasing risk and uncertainty associated with it. Indeed, with some 85% of the assessed fish stocks being at an overfished status in the Mediterranean, the future of fisheries and particularly that of the socially important SSF communities is in jeopardy. In the last decade, fishing tourism has been promoted as an alternative income-generating activity in SSF, which may at the same time contribute to the reduction of fishing pressure on the resources.

The present work presents the first results of a pilot study exploring the potential socioeconomic benefits of fishing tourism in the Greek Ionian Sea. The study was conducted in the frame of the Interreg ADRIION project ARIEL. It provides the estimate of socioeconomic indicators for small-scale fishing enterprises and insights on the contribution of fishing tourism to local development goals. Results indicate that this activity may create benefits at both the micro and macro level, however, there is a need to tackle a number of challenges. The key among them are better legal framework, targeted policy initiatives, raising awareness, skills development, building trust and social cohesion among fishing communities. These should be further promoted to facilitate the contribution of fishing tourism to sustainable development goals.

Can ICT Tool Effectively Contribute to Pursue Long-Term Sustainability Targets in Small-Scale Fisheries Segment? Preliminary Results on the Adoption of a Virtual Marketplace (VirMa) in Artisanal Fishery Sector

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Abstract. Small-scale fisheries play a key role in poverty alleviation and eradication, other than food nutrition and sustainable utilization of marine resources. This activity is one of the most relevant in the fisheries sector, especially for coastal communities, both in terms of employees and catches (representing 90% of the world's capture fishers and fish workers). Similarly, for Mediterranean riparian countries the small-scale fisheries are crucial in sustaining the region's coastal communities, where they represent over 80% of the total number of fishing vessels. It is widely recognized that the fishery sector is currently facing serious challenges, with 78% of fish stocks exploited outside safe biological limits, as reported by the State of Mediterranean and Black Sea Fisheries (FAO, 2018). In this context, a series of initiatives are in place to pursue ambitious targets: promoting at once a sustainable future of the planet under an economic, social and environmental point of view, contributing to the poverty eradication, improving socio-economic situation of fish workers, enhancing the progressive realization the right to adequate food, and providing guidance for state and stakeholders for the participatory policies that are ecosystem friendly.

During a consultation of small-scale fishers in the Adriatic and Ionian Seas, several issues have emerged, especially related to the market aspects, such as competition, lack of common strategies, logistical and organizational deficiencies, and access to new markets. Although small-scale fishers represent the focal players in their respective value chain, they are receiving scarce economic benefits for their products. Aiming at achieving long-term sustainability from an economic, social and biological resource perspective, Information and Communication Technologies (ICTs) were adopted to develop a tool able to explore new markets, increase focus on promotion and marketing, and potentially contribute for making pricing methods more transparent and consistent. The concept behind that tool is to safeguard the interest of small-scale fishers by enabling them to obtain prices and profits that let them achieving the sustainability targets. In this view, in order to explore the potential capability of ICT tools to effectively contribute to promote economic, social and environmental targets for small-scale fisheries, we developed an experimental virtual marketplace (VirMa) for smart technology devices.

How Can Small Scale Fishery Benefit from DNA Technology Applications?

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Abstract. Fraud in fisheries, aquaculture and processing are nowadays one of the key issues because of the demand to provide food for growing population. According to Interpol and European Community findings, fishery products are in the third place of all food products regarding the number of frauds. In addition, the illegal catch in developing countries and outside the EU's controlled areas is being introduced into the supply chain. Emerging molecular tests offer the possibility for commercialization, and inspection services and commercial laboratories can use them as a method to confirm the identity of the product. Furthermore, more frequent inspections could reduce fraud and improve the traceability of fresh fish and fish products. The Smart Specialization Strategy in Slovenia recognised the topic of fraud as an important issue and included it in the priority area 'Natural and Traditional Resources for the Future.' In Slovenia, there is interest in the food processing industry for development of fast, cheap and reliable methods that would be able to determine the origin and species composition of raw ingredients bought on the international market for further processing.

Reducing fraud and improving the traceability could be an opportunity for local fishermen. They will be able to develop their own brand and they could be more competitive on the market, making it easier to sell their products with the higher prices. There are several points that cause uncertainty especially accidental misidentification of species and imprecise trade names of fish. Advance in DNA technologies (Q-PCR assays, LAMP, DNA barcoding and metabarcoding) enable development of fast and reliable species-specific identification assays tailored to small-scale fishery demands as for species of high commercial value, endangered, invasive or poisonous species, or identification of processed products as fillets. The in-

production of reliable tests, their visibility and trust enable the possibility to raise consumer confidence in the brand, which confirm its quality and transparency in production process. Many NGOs around Europe support sustainable fisheries, healthy food, and therefore support various certification schemes based on modern DNA technologies. This aspects are covered in the recently financed project 'DNA Based Technology for Fraud Detection in Fishery Products with Socioeconomic Impact Assessment (CRP V1-1808)' and the main goal is to develop suitable set of assays for several species identification (small pelagics, squids) in different kinds of processed food.

Pick the Alien: Developing Market for Non Indigenous Species in Greece

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Abstract. Mediterranean ecosystems are changing rapidly as a result of several human pressures including climate change, overfishing, coastal destruction and spread of non-indigenous species (NIS). A growing number of NIS is entering and spreading in the basin causing devastating impacts and alterations to species communities as well as impacts to local economy and human health. This trend is expected to continue as human pressures increase and major introduction pathways (i.e. Suez Canal) remain unchallenged. Small scale and artisanal fisheries in Greece make a significant contribution to the primary sector, particularly important for the cohesion of the coastal communities. It is important that small scale fishery activities are environmentally, economically and socially sustainable perpetually ensuring healthy food, as well as the welfare of fishing communities. According to the FAO, the purpose of an ecosystem approach to fisheries is to plan, develop, and manage fisheries in a manner that addresses the multiple needs and desires of societies, without jeopardizing the options for future generations to benefit from the full range of goods and services provided by marine ecosystems. It is important for the fisheries to adapt to the rapid changes caused by the influx and spread of NIS in the basin. For instance, some areas in the eastern Mediterranean host proportionately more NIS than native ones. Therefore small scale and artisanal fisheries has to follow up these changes and adapt to new standards. Several Invasive Alien Species (IAS) have already been successfully introduced in the Mediterranean Sea and are competing with the native species on the mar-

ket. NIS are captured in Greece every day, in several areas in great quantities, but most commonly are discarded as bycatch, due to their extremely low market value. Many of those species discarded in Greece are edible and some reach high prices in the fishery markets of neighboring countries. Examples include the rabbitfish (*Siganus* spp.), lionfish (*Pterois miles*), trumpetfish (*Fistularia commersonii*).

Through the project 'Pick the Alien,' iSea aims to raise the awareness of local communities and stakeholders in Greek islands regarding NIS and their adverse effects on the environment and society. At the same time an effort is made to promote the consumption of edible NIS as a mitigation measure. During the project, we familiarize the public with edible NIS, we promote the targeted fishing of edible NIS and we facilitate the establishment of local pilot chains among fishers and restaurants. Our goal is to present NIS as an opportunity for fishers and local communities for increasing their profit in an environmentally sustainable way while concurrently alleviate fishing pressure from native species.

Applied Practices and Initiatives in Support of Enhancing Small-Scale Fisheries Value Chains, Post-Harvest Operations, and Trade

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Abstract. The 2030 Agenda for Sustainable Development calls on countries to ‘provide access for small-scale artisanal fishers to marine resources and markets’ (SDG 14.b); and ‘by 2030 double the agricultural productivity and the incomes of small-scale food producers, particularly women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment’ (SDG 2.3). The Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication (the SSF Guidelines) recognize the rights of fishers and fishworkers, acting both individually and collectively, to improve their livelihoods through value chains, post-harvest operations and trade. To achieve the targets in the 2030 Agenda and implement the SSF Guidelines it is necessary to build capacity of individuals, strengthen organizations and empower women; reduce post-harvest losses and add value to small-scale fisheries production; and facilitate sustainable trade and equitable market access.

Building on the report *Securing sustainable small-scale fisheries: Showcasing applied practices in value chains, post-harvest operations and trade* (FAO, 2020), the presentation will showcase applied practices and initiatives in support of enhancing small-scale fisheries value chains, post-harvest operations and trade, illustrating the relevant recommendations made in Chapter 7 of the SSF Guidelines, entitled ‘Value Chains, Post-Harvest and Trade.’ The focus will be on efforts to promote value addition through ‘direct marketing,’ as well as efforts to improve revenues and market access via certification and labelling schemes. The case studies constitute a rich and diverse selection of experiences, not only with regard to their geographical setting but also in the topics covered and approaches employed.

While there is no case study from the Mediterranean, cases are chosen for their potential to inform an international audience of fisheries professionals and stakeholders, with the intention of supporting national and international policy processes to enhance small-scale fisheries value chains, post-harvest operations and trade. Each case study presents a critical analysis of the relevant enabling conditions, and discusses the challenges and opportunities in relation to replicating the initiative in other fisheries.

The Role of Women in Spanish Fishing

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Abstract. Although the role of women in the world of fishing is almost unknown, it is no exaggeration to say that fishing would be impossible without the many and varied tasks performed by them. This study tackles the role of women in fishing from a double perspective, both quantitatively and qualitatively, focusing on the case of inshore fishing in Spain. From official statistics, the weight that women's work plays in fishing will be quantified, noting the difficulty of incorporating into such data the many jobs, mostly 'informal,' developed by women. In fact, new jobs carried out by women in fishing have recently been recognized by a reform of the Spanish labour law applied to fishing (for instance shellfish or neskatillas). In any case, there are still many jobs without acknowledging carried out by women in fishing. On the other hand, from a qualitative perspective, 21 in-depth interviews with women have been analysed. This analysis has revealed the rich variety of tasks that women perform both on land and at sea. Women play an increasing role in the management and maintenance of fisheries, but too often they lack legal recognition. Women are present in almost all the activities undertaken in the sector: they are in charge of weaving and repairing the nets, preparing the fishing gear or the daily meals of the crew. To recognise, quantify and value the role of women in fishing requires a change in the way fishing management is understood. It implies regarding the sector and the fishing communities as a whole, avoiding the simplistic image of a primary sector with men onboard. Fishing implies a way of life and comes from a very characteristic and particular social reality, where the borders between work, family and community are often blurred.



Transforming Small Scale Fisheries in the Mediterranean through Application of Co-Management

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Abstract. In 2008, the editors of the scientific magazine Conservation challenged a group of well-respected conservation experts to answer the question: what are ten key solutions to save the ocean? Daniel Pauly, director of the University of British Columbia's Fisheries Centre and the world's most renowned fisheries expert, strongly suggested to elevate the role of small-scale fishers in the world's market to solve the emerging fishery crisis. In his editorial, Pauly proposed to give artisanal fishermen exclusive access to coastal resources to reduce overfishing globally. He pointed to the many successful examples of sustainable small-scale fisheries throughout the world, and stated that their replication could go a long way toward overcoming the global crisis of fisheries.

In the Mediterranean, small-scale fisheries (SSF) employ directly over 137 thousand fishers and generate jobs for another 150 thousand people. They represent more than 50% of the whole fishing sector in the region. At the same time, 85% of Mediterranean fish stocks are overfished, while certain species of high economic and commercial value are in an alarming state due to over-exploitation. This is a result of decades of a top-down approach in fisheries management that has failed to take into account the Mediterranean marine ecosystem and to create a sense of ownership and self-investment amongst Mediterranean fishers.

This contribution presents the activities by WWF aimed at bringing fishers into decision-making processes and providing them the opportunity to craft solutions that result in sustainable stocks and income. We advocate foremost traditional and self-management of fisheries as a practice that has existed since ancient times. However, co-management is an approach more recently adopted in response to the perceived failure of centralized management of fisheries in avoiding the decline of fish stocks, and to a lack of government resources to manage fishery resources effectively.

Through ‘Transforming Small Scale Fisheries in the Mediterranean’ project, WWF is transforming Mediterranean SSF through the promotion of a co-management approach to fisheries, demonstration of the potential of SSF to become sustainable and the improvement of fisher’s income and livelihoods. The project is the largest, single initiative focused on the sustainability of SSF, bringing together a diverse range of partners across all the EU and 4 non-EU countries in the Mediterranean region. WWF believes this project tackles the issue of SSF management and fishers’ livelihood at the appropriate scale and with a diversity of elements that will result in new opportunities for fishers to secure their income, restore fish stocks and continue their traditional fishing activities.



Application of Life Cycle Assessment Methodology for Sustainable Production of Marine Fisheries in Gaza Strip-Palestine

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Abstract. The present study aims at identifying the impact of use of Life Cycle Assessment (LCA) in the fishery and aquaculture sectors. It targets to explain how LCA developed to define and quantify environmental and socioeconomic impacts of the seafood sector from extractive to productive activities, the concepts specifically implemented for fisheries and fish farming, and the limits of LCA application. The findings of this research are the first step in establishing a management plan for Gaza Strip marine fisheries sustainability and for controlling marine pollution. This research work will develop the LCA method to detect significant interactions between various environmental factors and socioeconomic conditions to guide fishery-system improvements and public decisions.

The study uses the analytical descriptive method and data from fishing boats gathered by conducting interviews and questionnaire surveys with 200 fishermen and related stakeholders and organizations as well as institutions in Gaza Strip over several years. The data include operational conditions such as the number of fishermen, the tonnage of the fishing boats, details of the fishing gear, number of fishing days per year, number of trawls per day, and dragging time per trawl, and fish production information such as the species landed, the catchweight, and the value of the catch. The study uses the analytical tool of LCA as an environmental assessment tool to quantify potential environmental problems and loads throughout the entire life cycle of a product or service. The life cycle phases of product include extraction and processing of raw materials (including packaging materials); manufacture; distribution; use/reuse/maintenance; recycling; final disposal and transport in all phases. Assessment is done by compiling related inputs and outputs of the product system and calculating the pos-

sible associated effects. Based on the findings, a management plan will be proposed to offer a framework for resolving the fishery systems and environmental quality problems now facing the Gaza fisheries sector. For the sustainable marine fisheries management plan to be effective, it is necessary not only to understand the environmental problems occurring during fishing activities in Gaza marine waters but also the social, economic, legal and policy issues related to control marine resource use.



Sathoan French Mediterranean Longline Bluefin Tuna Fishery

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Abstract. Sathoan is a producer organization (PO) recognized by the EU, which gives it management obligations concerning the various fleets it represents. Around a hundred vessels on the French Mediterranean coast are members of the PO: trawlers, small scale fishermen (SSF) and purse seiners. In the Mediterranean, 140 small scale boat (SSF) have a European fishing authorization for Bluefin Tuna: 1/3 are members of SATHOAN. Bluefin tuna represents 78% of turnover and 58% of landings by SATHOAN vessels. These mainly sell directly on the fresh market.

After years of intensive fishing (90s) and a collapse of stocks, the bluefin tuna was the subject in 2006 of a reconstitution plan and in 2018 of a management plan (ICCAT) which made it possible to re-increase the quotas and fishing capacities after years of efforts made by fishermen (reduction of quotas, controls, mandatory declarations, etc.). In 2020, the latest SCRS assessment confirms an increase in bluefin tuna biomass.

SATHOAN thus carries out actions to promote the practices implemented in recent years by professional fishermen in order to promote the product. Thanks to its involvement in scientific projects, SATHOAN makes fishermen aware of good practices and of reducing their interactions with sensitive species (bycatch). SATHOAN has also developed an application that allows fishermen to report their observations or catches of sensitive species.

These actions come within the framework of the promotion of the product through a collective brand, 'Thon Rouge de Ligne – Pêche artisanale' (Bluefin Tuna by Line – Artisanal Fishing), eco-labeled 'Pêche Durable' (Sustainable Fishing) since 2019, and MSC since October 2020. It requires fishermen to have full traceability, minimization of environmental impact as well as notions of quality and conservation. This is a formalization and recognition of the efforts of the PO's vessels, and it is a way to promote the product on the market: promotion campaign and tools are made available for the market (pins, flyers, posters, etc.).

Small-Scale Fisheries and Marketing Issues in Turkey

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Abstract. Total length of the coasts of Turkey is 8333 km and with a total of 178 000 km length of rivers, together with nearly 200 natural and dam lakes of more than 5000 km², form suitable grounds for fishing with a great potential for the industry. In 2014, marine commercial fisheries were valued at about US \$ 452 million. Of that amount, nearly 25% of marine fisheries catches were processed into fishmeal/oil. Aquaculture now represents over 50% of the total fisheries production in terms of volume, and approximately 70% in value (National Institute of Statistics, 2015), and is increasing each year. Among the total of 14,595 fishing vessels, 13,193 belong to small-scale fishers (SSFs). Small-scale fishers are defined as fishers using vessels less than 12m length and the quantity/value of the landings of these are not available in the databases of National Institute of Statistics.

Fishery cooperatives are the organisational bodies representing the SSFs in Turkey. There are 336 marine and 236 freshwater cooperatives with more than 30,000 members. The cooperatives are generally responsible for setting the prices in fish markets with morning auctions for the fishmongers. However, there are some problems in most of these markets as the brokers are involved in the trade. Products of many SSFs are not able to enter to the markets directly and around three merchants involve in the process until the products reach the final consumer. The total quantity of fish reaching the consumer directly is 1%. It is estimated that the lack of direct supply chains causes a loss of 35% in the income of small-scale fishers.

In recent years some initiatives are developing new market models integrating the SSFs directly as stakeholders. Among these, İstanbul Birlik Fishery Cooperative has been collaborating with universities, governmental agencies and economists since 2017, in order to develop a project based on direct marketing model which will create an 25% increase in the SSFs' income. Other initiatives, such as Mediterranean Conservation Society (AKD)

and Ecological Research Society (EKAD) have been working in the Aegean Coasts, in order to determine the circumstances and to develop models to increase the participation of local SSFs as stakeholders, in all processes including direct marketing and policy making towards sustainability. AKD also developed innovative models promoting the trade of invasive species and supporting the sustainability of local SSF markets.

Challenges in the Establishment of a Local Quality Label for Fishing Products: The Case of Andros Island, Greece

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Abstract. This study offers an insight into the challenges associated with the establishment of a local quality label certification related to fishing activity of small-scale fisheries in Andros island, Greece. In order to design the label, the authors initially sought the advice of management bodies (mostly terrestrial) already involved in such a measure in Greece, acquiring an insight of potential barriers and enablers. Then a hands-on approach was introduced, exploring perceptions of Andros' fishers related to such an initiative. In Andros, ecotourism could work to strengthen the local economy by coexisting with traditional activities on land (e.g. local produce) and the marine environment (e.g. small-scale fisheries), while exhibiting high quality criteria. In accordance with achieving sustainability goals following the LIFE program 'Andros Park,' the establishment and operation of 'Andros Brand' trade mark for fishing products was discussed with stakeholders in order to counterbalance conservation measures related to the protection of the monk seal *Monachus monachus* and promote marine biodiversity friendly fishing. The current study presents lessons learned from similar initiatives that have taken place in Greece, the key characteristics of 'Andros Brand' and stakeholders' perceptions. Results showed that challenges of this economic incentive included a range of nontechnical issues, including for example compliance and trust, awareness about environmental sustainability of marine resources, related to the human factor. The complex conflicting or synergistic relationships in the socio-economic and environmental systems demonstrate the need to adopt a holistic approach

when considering conservation actions, that apart from technical challenges, should also consider the interactions and feedback taking place within the social-ecological systems.



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