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MEDAC LIST OF PAPERS AND RESEARCHERS OF RECREATIONAL FISHERIES

During 2019, WG4 evaluated currently available literature on recreational fisheries in order to define which of the many studies are useful and significant for the purpose of further research on the sector in question, so as to be in a position to provide the Commission and the Member States with an up-to-date tool to be used as necessary in the pursuit of sustainable, conscious and non-discriminatory management of recreational fisheries in the Mediterranean basin.

Paper/Publication	Year	Author/s	Modality	Comments
Cultural and socio-economic impacts of Mediterranean marine protected areas	2000	Badalamenti et al.	All	Authors review management of different activities in Mediterranean MPAs, including recreational fisheries, to claim more focus on socio-economic impacts.
SFITUM, Sport fishing: an informative and economic alternative for Tuna fishing in the Mediterranean	2003	Gordoa A.	Angling	Boat fishing
Spearfishing in the Balearic Islands (West central Mediterranean): species affected and catch-evolution during the period 1975-2001	2004	Coll et al.	Spearfishing	
Impacte de la pesca recreativa sobre les espècies comunes al litoral de Catalunya	2004	ECOPROGES	All	Study for the Catalan fisheries Directorate, focused on the impact on species
A conceptual framework to identify and understand conflicts in recreational fisheries systems, with implications for sustainable management	2005	Robert Arlinghaus	All	
Global impact on recreational fisheries	2005	Arlinghaus R., Cooke S.	All	Letter responding the article *The impact of United States recreational fisheries on marine fish populations*.
A fuzzy local expert system to estimate intrinsic extinction vulnerabilities of marine fishes to fishing	2005	Cheung et al.	All	This article is useful for all fisheries (commercial and recreational), as it allows estimating vulnerability of targeted species to fishing
The recreational fishery off Majorca Island (Western Mediterranean): some implications for coastal resource management	2005	Morales-nin et al.	All	
Estudio del impacto socioeconómico de la pesca recreativa en el Mediterráneo español	2005	TRAGSA	Boat	Focused on Spanish Mediterranean boat fishing.
Overcoming human obstacles to conservation of recreational fishery resources, with emphasis on central Europe	2006	Robert Arlinghaus	Angling	Paper based on freshwater ecosystems with private access, but some constraints and suggestions are applicable to marine RF
La pesca recreativa en Cataluña: aspectos biológicos, sociales y económicos	2006	Maria A.	All	Focused just on Catalonia region
Review of recreational fisheries survey methods	2006	Sullivan et al.	All	

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Paper/Publication	Year	Author/s	Modality	Comments
Recreational fisheries in the Mediterranean countries: A review of existing legal frameworks	2007	Gaudin C., De Young C.	All	
Managing evolving fish stocks	2007	Jorgensen et al.	All	The paper shows how fisheries-induced evolution may affect our experience on several marine activities, recreational fisheries being one of them
EU Contract FISH/2004/011 on "Sport Fisheries" (or Marine Recreational Fisheries) in the EU	2007	Pawson et al.	All	
Influence of anatomical hooking depth, capture depth, and venting on mortality of painted comber (Serranus scriba) released by recreational anglers	2008	Alòs J.	Angling	
Effects of hook size and barbless hooks on hooking injury, catch per unit effort, and fish size in a mixed-species recreational fishery in the western Mediterranean Sea	2008	Alòs et al.	Angling	
The definition of marine recreational fishing in Europe	2008	Pawson et al.	All	
Spearfishing pressure on fish communities in rocky coastal habitats in a Mediterranean marine protected area	2008	Lloret et al.	Spearfishing	This paper is the result of an Interreg IIIc project (MEDPAN) full of methodological flaws (species identification, size estimations, survey methodology, etc). IFSUA identified them all and wrote a detailed report about it. The problem is that this paper has been cited and used many times after its publication by other authors, so the flaws are carried around. Even managers have used it to apply discriminatory regulations.
Recreational fisheries: Socioeconomic importance, conservation issues and management challenges	2009	Arlinghaus R., Cooke S.	All	Chapter 3 from book: Recreational hunting, conservation and rural livelihoods: science and practice, by Dickson et al.
Adaptive management for a turbulent future	2010	Allen et al.	All	This is a very general paper that mentions that this kind of management can help to mitigate anthropogenic impacts and, specifically, recreational harvest of animals and regulation of human participation in natural resource-based recreational activities.
Scientists and recreational fishers: Communication manners and its efficiency	2010	Cardona-Pons et al.	Angling	Although the study is only about angling, the conclusions could be applied to all modalities.
Diversity and complexity of angler behaviour drive socially optimal input and output regulations in a bioeconomic recreational-fisheries model	2010	Johnston et al.	All	Study on freshwater species but interesting to understand the need to take fishers behaviour into consideration when managing RF.

Paper/Publication	Year	Author/s	Modality	Comments
Socioeconomic implications of recreational shore angling for the management of coastal resources in a Mediterranean Marine Protected Area	2010	Font T., Lloret J.	Angling	Shore-based
Quantifying recreational fishing catch and effort: a pilot study of shore-based fishers in the Perth Metropolitan Area	2011	Smallwood et al.	Angling	Focused on shore-based fishers
The importance of trip context for determining primary angler motivations: are more specialized anglers more catch-oriented than previously believed?	2011	Beardmore et al.	Angling	Although the study is on a freshwater species and angling, we believe it should be aplicable to marine recreational fisheries modalities. It would be desirable more studies like this (mainly saltwater and spearfishing) to see if results are similar.
Assessing the impact of artisanal and recreational fishing and protection on a white seabream (Diplodus sargus sargus) population in the north-western Mediterranean Sea, using a simulation model. Part 2: Sensitivity analysis and management measures	2011	Hussein et al.	All	
Comunidades de peces de los arrecifes rocosos costeros de Galicia: ecología e impactos humanos	2011	Pita P.	All	In this PhD recreational fisheries CPUE is obtained from a survey answered by a ridiculous number of fishers (e.g. 54 spearfishers out of a population of more than 5000). This is against standard methodology in how recreational fisheries assessments should be carried out and thus, results in completely flawed data.
Spearfishing regulation benefits artisanal fisheries: the ReGS indicator and its application to a multiple-use Mediterranean marine protected area	2011	Rocklin et al.	Spearfishing	It makes assemblages with species not targeted by spearfishers. The list used is completely different from MEDAC list. On the other hand, should an MPA have the role of benefiting commercial stakeholders and be detrimental to RF? Finally, although grouper being banned to spearfishing, they include it as fished by them. This is completely unacceptable.
Community involvement in recreational fisheries data collection: opportunities and challenges	2011	Stenekes N., Sahlqvist P.	All	The paper shows the benefits of recreational fisheries monitoring programs in Australia.
Influence of spear guns, dive gear and observers on estimating fish flight initiation distance on coral reefs	2012	Januchowsky-Hartley et al.	Spearfishing	
Technical Guidelines for Responsible Fisheries 13: Recreational Fisheries	2012	Arlinghaus et al.	All	FAO Document. MEDAC developed advice based on this.
Analyse économique et sociale de l'utilisation de nos eaux marines et du coût de la dégradation du milieu marin en Méditerranée occidentale, activités de loisirs utilisation des eaux marines, pêche récréative	2012	Levret H.	All	

Paper/Publication	Year	Author/s	Modality	Comments
Towards resilient recreational fisheries on a global scale through improved understanding of fish and fisher behaviour	2013	Arlinghaus et al.	All	Understanding fish and fisher behaviour is paramount for resilient fisheries
Communication between scientists, fishery managers and recreational fishers: Lessons learned from a comparative analysis of international case studies	2013	Dedual et al.	All	
Unexpectedly high catch-and-release rates in European marine recreational fisheries: implications for science and management	2013	Ferter et al.	Angling	
La pêche récréative en mer en France Métropolitaine (Atlantique, Manche, Mer du Nord, Méditerranée)	2013	Levrel et al.	All	Results of the survey taken by IFREMER
A comptarative analysis between recreational and artisanal fisheries in a Mediterranean coastal area	2013	Lloret et al.	All	All assumptions on spearfishing are, at least, dubious due to being based on the paper by the same authors on 2008 that is considered completely flawed.
overcoming human obstacles to conservation of recreational fishery resources, with emphasis on central Europe	2013	Cooke et al.	Angling	Authors present different scenarios in which tagging by unexperienced fishers is questioned.
Análisis de la flota recreativa y de su impacto socioeconómico y pesquero en Euskadi	2013	Zarauz et al.	Angling	Socio-economics of boat fishing in Basc Country
Estimation of the recreative fishery catches along the Venetian coast	2014	Anelli Monti et al.	All	
Explaining participation rates in recreational fishing across industrialised countries	2014	Arlinghaus et al.	All	Results mix freshwater and marine RF
Socio-ecological approach of the recreational squid fishery	2014	Cabanellas-Reboredo M.	Angling	Boat fishing
Angling for endangered fish: Conservation problem or conservation action?	2014	Cooke et al.	Angling	
Does recreational catch impact the TAC for commercial fisheries?	2014	Eero et al.	All	Based on an Atlantic species but perfectly aplicable to other basins
Biological and ecological impacts derived from recreational fishing in Mediterranean coastal areas	2014	Lloret et al.	All	All assumptions on spearfishing are, at least, dubious due to being based on the paper by the same authors on 2008 that is considered completely flawed.
A review of biology, fisheries and population structure of *Dentex dentex*	2014	Marengo M., Marchand B.	All	Authors make a review on this species, including its fisheries. A point is dedicated to recreational.
How relevant are recreational fisheries? Motivation and activity of resident and tourist anglers in Majorca	2014	Morales-nin et al.	All	
Spear fishing ban in MPAs: the rational choice?	2014	Pita et al.	Spearfishing	The study identifies several flaws in some of the main studies focused on spearfishing

Paper/Publication	Year	Author/s	Modality	Comments
The use of spearfishing competition data in fisheries management: evidence for a hidden near collapse of a coastal fish community in Galicia (NE Atlantic Ocean)	2014	Pita et al.	Spearfishing	Spear fishing data is used to show the decline of coastal fish communities (independently of the cause).
The economic gains from reallocating specific saltwater fisheries	2015	American sportfishing association	All	
Improving knowledge exchange among scientists and decision-makers to facilitate the adaptive management of marine resources: A review of knowledge and research needs	2015	Cvitanovic et al.	All	Review paper useful for all kind of fisheries, including recreational and commercial
The structure and function of angler mental models about fish population ecology: The influence of specialization and target species	2015	Gray et al.	Angling	Although the study is on a freshwater species and angling, it is perfectly aplicable to marine recreational fisheries modalities.
Effectively managing angler satisfaction in recreational fisheries requires understanding the fish species and the anglers	2015	Beardmore et al.	Angling	Although the study is on a freshwater species and angling, we believe it should be aplicable to marine recreational fisheries modalities. It would be desirable more studies like this (mainly saltwater and spearfishing) to see if results are similar.
Comparing industry sector values, with a case study of commercial fishing and recreational sea angling	2015	Tinch et al.	All	
Comparing different survey methods to estimate European sea bass recreational catches in the Basque country	2015	Zarauz et al.	All	Although the study is focused in the Atlantic is perfectly applicable to the Mediterranean.
Collaborative approaches to accessing and utilising historical citizen science data: a case-study with spearfishers from eastern Australia	2015	Gledhill et al.	Spearfishing	How to take advantage of recreational fisheries knowledge and sources of information to establish baselines to understand change in marine ecosystems. Applicable to other RF modalities, also.
Smartphones reveal angler behavior: a case study of a popular mobile fishing application in Alberta, Canada.	2015	Papenfuss et al.	All	Paper based on freshwater ecosystems, but applicable to marine RF
Fast and behavior-selective exploitation of marine fish targeted by anglers	2016	Alós et al.	Angling	Study on *Xyricthys novacula*. Vulnerability to angling. The idea of vulnerability could probably be extrapolated to other gears.
Recommendations for the future of recreational fisheries to prepare the socio-ecologycal system to cope with change	2016	Arlinghaus et al.	All	Conclusions and recommendations emerged from 2014 WRFC
Response of fish populations to novel and traditional harvesting regulations	2016	Bond et al.	All	Conference paper based on laboratory experiment suggests harvesting slots managing outperform traditional min length management. It would be desirable to test it in the sea.

Paper/Publication	Year	Author/s	Modality	Comments
Estimating harvest and its uncertainty in heterogeneous recreational fisheries	2016	Cabanellas-Reboredo et al.	Angling	Focused on *Loligo vulgaris* fishery (boat) in Mallorca but applicable to many modalities
Comparative analysis between artisanal and recreational fisheries of *Dentex dentex* in a Marine Protected Area	2016	Marengo et al.	All	Biased toward artisanal fisheries. Although they catch more Dentex, they claim measures to RF. On the other hand, it's against *Malak A. et al.* (2011) conclusion that spear fishing is the main threat of *Dentex dentex* in the Mediterranean and here its impact is considered low.
Assessing the impact of spear fishing by using competitions records and underwater visual censuses	2016	Pita et al.	Spearfishing	
Consumptive tourism causes timidity, rather than boldness, syndromes: a response to Geffroy et al.	2016	Arlinghaus et al.	All	The authors of the response state that consumptive tourism does not cause boldness but timidity syndrome based on recreational fishing examples.
Does unreported catch lead to overfishing?	2016	Rudd M.B., Branch T.A.	All	Useful for any kind of fishery, recreational and commercial
The Barcelona agreement: a manifesto towards the spearfishing of the future	2016	Sbragaglia et al.	Spearfishing	The authors explain the main challenges for this activity in over-exploited coastal ecosystems
Bait worms: a valuable and important fishery with implications for fisheries and conservation management	2016	Watson et al.	Angling	Assessment and ecological implications of bait collecting
Why do fishers fish? A cross-cultural examination of the motivations for fishing	2016	Young et al.	All	An study of fishers motivations, comparing recreational and artisanal and finding out that they have a lot in common (recreational mindset).
Spearfishing data reveals the littoral fish communities' association to coastal configuration	2017	Boada et al.	Spearfishing	
Expanding aquatic observations through recreation	2017	Brewin et al.	All	
The nexus of fun and nutrition: Recreational fishing is also about food	2017	Cooke et al.	All	
Evaluation of observer-and industry-based catch data in a recreational charter fishery	2017	Gray C.A., Kennelly S.J.	Angling	
Recreational sea fishing in Europe in a global context - Participation rates, fishing effort, expenditure, and implications for monitoring and assessment	2017	Hyder et al.	All	
Toward a mechanistic understanding of vulnerability to hook-and-line fishing: Boldness as the basic target of angling-induced selection	2017	Klefoth et al.	Angling	Although the experiment was made with freshwater fish, it is probably applicable to marine species
What makes fish vulnerable to capture by hooks? A conceptual framework and a review of key determinants	2017	Lennox et al.	Angling	Applicable to recreational and commercial fisheries that target fish with hooks
Conciliating artisanal and recreational fisheries in Anegada Bay, Argentina	2017	Llompart et al.	All	

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Paper/Publication	Year	Author/s	Modality	Comments
A matter of scales. The management of recreational fisheries in the EU	2017	Pita et al.	All	
The role of recreational fisheries in the sustainable management of marine resources	2017	Ogana A.	All	
Making waves: Marine citizen science for impact	2017	Schläppy et al.	All	Although not directly focused on recreational fisheries, it could be very useful for RF stakeholders
Angler apps as a source of recreational fisheries data: opportunities, challenges and proposed standards	2017	Venturelli et al.	All	Opportunities and challenges of apps as a source of data for RF assessments
Recreational fisheries in Portofino Marine Protected Area, Italy: Some implications for the management	2017	Venturini et al.	Angling	
Participatory adaptive management leads to environmental learning outcomes extending beyond the sphere of science	2017	Fujitani et al.	Angling	Although the study is on a freshwater species and angling, we believe it is aplicable to all marine recreational fisheries modalities.
An assessment of catches of shore sport fishing competitions along the coast of the Maltese Islands: Implications for conservation and management	2018	Agius Darmanin S., Vella A.	Angling	Just focused on shore based competitions
Welfare of aquatic animals: where things are, where they are going, and what it means for research, aquaculture, recreational angling and commercial fishing	2018	Browman et al.	All	Applicable to recreational and commercial fisheries.
Identifying recreational fisheries in the Mediterranean Sea through social media	2018	Iovos et al.	All	Taking data from social media is very dangerous, as a very limited part of the RF population uses them. Indeed, there is a new trend among fishers to avoid them.
Recreational fishing in Spain: First national estimates of fisher population size, fishing activity and fisher social profile	2018	Gordoa et al.	All	First assessment made of the whole Spanish population of recreational fishers using an app.
Estimating recreational fishing fleet using satellite data in the Aegean and Ionian Seas (Mediterranean Sea)	2018	Keramidas et al.	Angling	Limited to boat fishing
Estimating post-release mortality of European sea bass based on experimental angling	2018	Lewin et al.	Angling	
The impact of marine recreational fishing on key fish stocks in European waters	2018	Radford et al.	All	Although the article is full of extrapolations due to scarce data, the authors stress the need to include RF catches in stock assessments
Spearfishing modulates flight initiation distance of fishes: the effects of protection, individual size, and bearing a speargun	2018	Sbragaglia et al.	Spearfishing	Results differ in some aspects with those of Januchowsky-Hartley et al. More studies on this subject should be made in order to understand which is the general trend.
Opinion: Governing the recreational dimension of global fisheries	2019	Arlinghaus et al.	All	
The future of recreational fisheries: advances in science, monitoring, management and practice	2019	Brownscombre et al.	All	Review on different aspects of recreational fisheries, including research. Some data offered seems dubious, like that catch and release in European RF is around 60%.

Paper/Publication	Year	Author/s	Modality	Comments
The first estimates of species compositions of Spanish marine recreational fishing reveal the activity's inner and geographical variability	2019	Dedeu et al.	All	
Recreational and small-scale fisheries may pose a threat to vulnerable species in coastal and offshore waters of the western Mediterranean	2019	Lloret et al.	All	Lloret keeps using his 2008 flawed data and the biased results keep spreading to other papers.
Data mining on YouTube reveals fisher group-specific harvesting patterns and social engagement in recreational anglers and spearfishers	2019	Sbragaglia et al.	All	

A list of researchers who work in European and/or national research institutes and organisations is also provided together with this information; these are experts who have acquired in-depth knowledge and experience on the specific issues affecting the recreational fisheries sector. This list reflects to some degree the confidence that the stakeholders have in those fisheries scientists who demonstrate that they know how to approach the matters that are unique to the recreational fisheries sector in a fair and unbiased way, thus providing high-level scientific support in the endeavour to define future management choices for a recreational fisheries sector that is sustainable, easy-to-integrate and which does not suffer undue discrimination.

Scientist Name, Surname	Interest area (maritime, freshwaters, both)	Job Country	Institute/University/EU (ICES - STECF)
Alòs, Pep	maritime	Spain	IMEDEA
Arlinghaus, Robert	Both	Germany	Leibniz-Institute of Freshwater Ecology
Azzurro, Ernesto	maritime	Italy	ISPRA
Baudrier, Jérôme	maritime	France	IFREMER
Boada, Jordi	maritime	Spain	UB
Brown, Adam	maritime	UK	CEFAS
Cavaleiro Diogo, Hugo Miguel	maritime	Portugal	University of Azores
Colella, Sabrina	maritime	Italy	ISMAR
Dedeu Lunton, Arnau Luk	maritime	Spain	ICM-CSIC
Ferter, Keno	maritime	Norway	IMR
Gordoa, Ana	maritime	Spain	CEAB-CSIC
Grati, Fabio	maritime	Italy	CNR-IRBIM and FAO GFCM
Hyder, Kieran	maritime	UK	CEFAS
Keramidas, Ioannis	maritime	Greece	AUT
Lafon, Jérôme	maritime	France	FranceAgriMer
Lozano, Matías	maritime	Spain	IEO

Scientist Name, Surname	Interest area (maritime, freshwaters, both)	Job Country	Institute/University/EU (ICES - STECF)
Michailidis, Nikolas	maritime	Cyprus	DFMR
Mohamed, Esha	maritime	Sweden	SLU
Morales-Nin, Beatriz	maritime	Spain	IMEDEA
Mugerza, Estanis	maritime	Spain	AZTI
Olesen, Hans Jakob	maritime	Denmark	DTU
Papadopoulos, Anastasios	maritime	Greece	FRI
Pita, Pablo	maritime	Spain	USC
Rangel, Mafalda	maritime	Portugal	CCMAR
Sbragaglia, Valerio	maritime	Italy	ISPRA
Sköv, Christian	maritime	Denmark	DTU
Strehlow, Harry Vincent	maritime	Germany	Thünen-Institute
Veiga, Pedro	maritime	Portugal	Sustainable Fisheries Partnership
Verleye, Thomas	maritime	Belgium	VLIZ
Villasante, Sebastián	maritime	Spain	USC
Volstad, John Helge	maritime	Norway	IMR
Weltersbach, Simon	maritime	Germany	Thünen-Institute
Zarauz, Lucia	maritime	Spain	AZTI