Study on ecosystem-based approaches applied to fisheries management under the Common Fisheries Policy for Mediterranean and the Black Seas (EASME/2020/OP/0012)

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outline

- 1. Brief presentation of the project overall goals
- 2. Focusing on relevant Case Studies
- 3. Getting feedback from MEDAC members

Rules and follow up

- Chatham house rules we or other participants can use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, are allowed to be revealed
- The results will inform our report to the European Commission

Objectives of this Focus Group - WK

- **Project starting point**: EAFM is an objective of the CFP, the implementation so far is not that successfull although elements are being implemented
- Project analysed challenges for fisheries management, fisheries management measures and case studies to look at experiences with the implementation of EAFM
- Main workshop objective:

"did we draw the right conclusions from the case studies regarding best practice?"

Brief presentation of the project overall goals

Context

- The EU is committed to an ecosystem-based approach to fisheries management (EAFM);
- Current management largely focused on single species;
- Complexity of challenge needs a generic methodology on how to implement the EAFM across all marine areas in the EU. This has not yet been developed;
- A clear state-of-play is needed to make progress, to learn from the local examples and to identify where data or knowledge gaps hamper development and implementation of EAFM;

Context

This project intends to provide a clear state-of-play to support progress, to learn from the local examples and to identify where data or knowledge gaps hamper development and implementation of EAFM.

Overview of relevant tasks

- Task 1: Identify the legal setting for EAFM
- Task 2: Identify the relevant fisheries
- Task 3: Identify and describe the ecosystem challenges addressed by an EAFM
- Task 4: Identify and describe the EAFM measure
- Task 5: Analyze the scientific underpinning of the EAFM measures
- Task 6: Identify best practices in EAFM
- Task 7: Classify and categorize the management measures
- Task 8: Expert workshop

Overview of tasks 5&6

- Categorisation of fisheries management measures (from task 4)
- Selected case-studies (CS) for the analysis of the scientific underpinning cover those three categories;
- Best practice analysis based on CS.
- <u>The final goal of this work</u> will be to provide some general guidelines for addressing ecosystem challenges related to the three key elements (scientific evidence, decision-making, and compliance) that may facilitate the implementation of EAFM and potential obstacles that may prevent its success.

List of selected Case Studies

Case Study		Geographical Area
		Strait of Sicily
1	FRAs in the MED	Jabuca-Pomo Pit
		Western Med
2	Turbot MAP in Black Sea	Black Sea
3	SSF and the Western Med	
	MAP	Western Med
4	Artificial Reefs in the	
	Aegean	Greece
5	Mitigating impact of invasive	
	species	Cyprus

List of selected CS

Case	e Study	Geographical Area
1	FRAs in the MED*	a.Strait of Sicily b.Jabuca-Pomo Pit
		c.Western Med
2	Turbot MAP in Black Sea	Black Sea
3	SSF and the Western Med MAP	Western Med
4	Artificial Reefs in the Aegean	Greece
5	Mitigating impact of invasive species	Cyprus



Definition of Best Practices

"Practices that create positive outcomes in a given system (in this case a fishery system) and that relate to the three pillars of successful management: evidence, decision-making and compliance."

Best Practices for EAFM

THREE PILLARS FOR SUCCESSFULL MANAGEMENT

Scientific evidence

Decision-making

Compliance

CRITERIA TO IDENTIFY GOOD PRACTICES

Transparency and credibility

Clear objectives and guidelines

Consideration of all evidence

Regionalization

Stakeholder involvement

Some preliminary results on BP

				Criteria for Best Practices								
				Evid	ence			Decisior	making		Follow-up	
	CASE STUDIES			Trust	Туре	Use fisher's knowledge	Evidence-based	Transparency	Stakh. Involvement	Regionalization	Monitoring	
		Strait of Sicily										
1	FRAs in the Med	Jabuca-Pomo Pit										
		Western Med										
2	Turbot MAP in Black Sea	Black Sea										
3	SSF and the Western Med MAP	Western Med										
4	Artificial Reefs in the Aegean	Greece										
5	Mitigating impact of invasive species	Cyprus										

Some preliminary results on BP

\checkmark CS are doing quite well in:

- Quality and trust
- High degree of transdisciplinarity
- Evidence-base decision making
- ✓ Main improvements need to focus on:
 - Increasing transparency
 - Use of Fisher's knowledge
 - Use of transdisciplinary evidences
 - Regionalization
 - Monitoring



List of selected CS for this WK

Case	e Study	Geographical Area
1	FRAs in the MED*	a.Strait of Sicily b.Jabuca-Pomo Pit c Western Med
5	Mitigating impact of invasive species	Cyprus





CS 1a. FRAs in the Strait of Sicily (GSA 12-16) - With reference to EU and non-EU fleet interactions

- GFCM/42/2018/5;bottomtrawlers above 10m length targeting European hake and deep-wáter rose shrimp (outlinedinblue).
- SAC Multi Annual Management Plan implemented these FRAs in 2016 to reduce fishing mortality and recover stocks to MSY, in line with CFP.
- 1nm buffer zone where catch must be above minimum conservation reference size.
- VMS and landings data from Maltese, Italian and Tunisian fletes used as monitoring tolos by SAC.



Figure 1: FRA Boundaries (A) East of Adventure Bank, (B) West of Gela Basin, (C) East of Malta Bank. Blue outline within GSA14 is a temporal closure site.

CS 1a. FRAs in the Strait of Sicily (GSA 12-16) - With reference to EU and non-EU fleet interactions



Scientific:

- To date, these FRAs are functioning properly; stocks have recovered.
- Decline in incidental catches of cetaceans, seaturtles and elasmobranchs.
- Protection of nursery hábitats
- Difficult to assess effectiveness of FRAs; especially juvenile capture.
- Effective monitoring, control and surveillance challenging ininternational waters.

Socio-economic:

Tunisia

- Profits increased
- Growing industry with a Young work force

Italy

- Fishers located close to FRAs are showing increased competition for fishing grounds amongst themselves
- A result of single-gear mentality

Malta

- Mutually agreed to have FRA simplemente for the Benefit of stocks
- No negative impact; Maltese fleet use multiple gears throughout the year



CS 1a. FRAs in the Strait of Sicily (GSA 12-16) - With reference to EU and non-EU fleet interactions

Good and bads in terms of good practices

				Evidence		Decis	Follow-up	
CS	Management measure	Quality (low, medium, high)	Trust (low, m high)	edium,Type (monodisc multidisciplinary, interdisciplinary transdisciplinary)	iplinary,Fishers' knowledge used or(low, medium, high)	Evidence-based Transparency (with clearmedium, high) objectives (low, medium, high)	ow,Stakeholders' Regionaliza involvement (low,(low, m medium, high) high)	tion Monitoring (low, edium,medium, high)
FRAs in the Mediterranean (Strait of Sicily) with reference to EU and non-EU fleet interactions	Fisheries Restricted Areas (FRAs) to safeguard essential fish habitats and nurseries of European hake and deep-water rose shrimp	High. The scientific underpinning was published in peer- reviewed journals, GFCM reports, and research has been ongoing for more than two decades.	High. All re research and data been reviewed by and SAC.	elevant Transdisciplinar a haveMultiple stakehold GFCMincluded in the o making process the technical GFC SAC, and non-: NGOs, fishermen o authorities.	y. High. Fishers ers wereknowledge has decision-helped scientists such as confirm the CM and nursery sites and scientific essential ind local habitats.	High. The Medium. objective was Decisions clear: tobacked up by protect nursery scientific proc areas from Results v overfishing discussed stakeholders, however communication between fish and t representatives needs improvement.	High. Fishers and High . The areNGOs werestudy aconsulted withaddressing ess.regularly duringregional verethe decision-challenges withmaking process.measures. Involvement is stillregional ongoing even postavailable implementation. used. heir	caseLow-medium. wasThe stocks are monitored at a regional level by andthe EU, however, Gooddetailed studies to dataassess the andeffectiveness of these FRAs are needed. Study must compare abundance and demography of these stocks inside and outside the FRAs.



CS 1a. FRAs in the Strait of Sicily (GSA 12-16) - With reference to EU and non-EU fleet interactions

Good and bads in terms of good practices

						Crit	eria for Best Pract	tices			
				Evid	ence		Decision making				Follow-up
CASE STUDIES			Quality	Trust	Туре	Use fisher's knowledge	Evidence-based	Transparency	Stakh. Involvement	Regionalization	Monitoring
1	FRAs in the Med	Strait of Sicily									



- ✓ On 17 October 2017 GFCM adopted the EU proposal for the establishment of a FRA banning demersal fisheries on ca. 2,700 km², in the central Adriatic, shared between Italy and Croatia
- ✓ three zones: Zone A (recreational and professional fishing activity with bottom-set nets, bottom trawls, set longlines and traps is prohibited), Zone B (fishing activities are prohibited from 1 September to 31 October each year, only vessels with specific authorizations and demonstrated historical fishing activities in zone B) and Zone C (the same of zone B for all fishing activities but bottom trawls shall be entitled to fish only on specific days and hours)





The area has been clearly identified as

- a site of unique physical features influencing the dynamics of waters circulation in the whole Mediterranean basin;
- (2) one of the most important EFHs for European hake (*Merluccius merluccius*) and others valuable species such as horned octopus (*Eledone cirrhosa*), monkfish (*Lophius budegassa*) and Norway lobster (*Nephrops norvegicus*);
- (3) a key area for cetaceans, sea turtles and sea birds
- (4) an area containing VMEs that are significantly impacted by bottom trawling.









Good and bad in terms of good practices



The good

- High quality of the scienctific undepinning (both FDD and FID);
- High trustness of the scientific infromation;
- The objective of the FRA was clear (to protect nursery areas from fishing activities);
- ✓ The process was fully transparent
- The level of stakeholders involvement was high (fishers and NGOs);
- ✓ Good regional data available and used
- Existince of different monitoring activities (EU DCF and GFCM DCRF, MEDITS in spring, UW TV survey, VMS, AIS raw data and Log-book data

The bad

- Type of knowledge was essentially monodisciplinary (biological-ecological information), any socioeconomic analysis was carried out;
- Fishers' knowlege come mainly from the Croatian side;
- There is any monitoring program for benthic communities





Good and bad in terms of good practices

			Evidence					Decision-Making					
cs	Management measure	Quality (low, medium, high)	Trust (low, me high)	dium,Type (multid interdi transd	monodisciplinary, isciplinary, sciplinary (isciplinary)	r,Fishers' knowledge usec or(low, medium, high)	Evidence- based with ,clear objectives (low, medium high)	Transparency (low, medium high)	Stakeholders involvement (low medium, high)	Regionalization (low, medium high)	Monitoring (low, medium, high) /		
Pomo/Jabuka FRA	Protection of hake and rose shrimp nursery areas	High. The scientific underpinning was provided by different surveys carried out in the area (MEDITS).	High. The M program have hauls in the area is carried out of year (May-June), spatial and ter coverture of scientific informat not fully appropria	EDITS Mono some _{Resear} and itbiologi ne awere to so the output iporal analys the employ ion is impact te.	disciplinary. tch was led b sts. Decision pased on scientif s. Socioeconom is was no yed to assess the of the measure	Medium. Fxisting sfisheries (expert) toknowledge used tin the eCS. Fisheries expert knowledge come mainly from the Croatian side.	High. The objective was clear: to protect a foursery area from fishing sactivities.	High. Decisions are baked up by a scientific process Results were discussed with stakeholders.	High. Fishers and NGOs were involved in the process of setting the protected area.	High. The Case study wa addressing regional challenges and measures. Good regional data available and used.	Medium. The stock is monitored, and its state assessed by GFCM, but there is not a specific monitoring plan for the benthic habitats. Monitoring activities currently in place 1. EU DCF and GFCM DCRF: Biological sampling of catches and discards of Nephrops and Merluccius, Landings, catches and discards of major species by gear in the area 3. MEDITS bottom travit surveys 4. Under Water TV surveys of whole Jabuka/Pomo area every spring linked with experimental bottom trawling with specific experimental a Nephrops net (CNR-IRBIM and IOF funded by MIPAAF) 5. Bottom traviling on Western Jabuka/Pomo area every autumn with a Nephrops net (funded by MIPAAF) 6. VMS, AIS raw data ana Log-book data for all fishing fleet segments exploiting demersat resources		
											7. Economic data for all fishing fleet segments exploiting demersa resources (EU DCF and the GFCM DCRF)		



Good and bad in terms of good practices

						Crit	eria for Best Prac	tices			
				Evid	ence				Follow-up		
CASE STUDIES			Quality	Trust	Туре	Use fisher's knowledge	Evidence-based	Transparency	Stakh. Involvement	Regionalization	Monitoring
1	FRAs in the Med	Jabuca-Pomo Pit									



CS 1c. FISHERIES RESTRICTED AREAS IN THE WESTERN MEDITERRANEAN SEA: ITALY

- Art. 11 West Med MAP also support the implementation of closure areas to achieve a reduction of at least 20 % of catches of juvenile hake
- In 2020, with the Directorial decree n. 9045689, 6/8/2020 the Italian Ministry of Agricultural Policy (MIPAAF) established 8 FRAs in GSAs 9-10-11 where fishing with towed gears is not allowed
- The FRAs network has the main purpose to protect nursery grounds of hake from bottom trawling thus helping in reduce fishing mortality on juveniles.
- FRAs identification was based on the best scientific knowledge about the spatiotemporal distribution of hake juveniles



Additional FRAs may be needed in the coming years to achieve the 20% reduction of juvenile hake catch objective and contribute to get the MSY target for hake stocks



CS 1c. FISHERIES RESTRICTED AREAS IN THE WESTERN MEDITERRANEAN SEA: ITALY

Scientific underpinning

Confidence level- Expert opinion: Low **Confidence level-Peer reviewed lit.: High Confidence level - Regional data: Very high**

Analysis of time-series of survey data in the Italian Seas has shown a **high** spatio-temporal stability of the main hake nurseries (Colloca et al., 2019; 2015)

The measure seems to be partially implemented because, according to the WestMed MAP, additional closure areas should be introduced to include the protection of juveniles and spawners of all demersal species covered by the MAP.

This was also highlighted by STECF-21-13 running a series of simulations of different management scenarios and concluded that almost all simulated scenarios indicate that Fmsy will not be achieved for all stocks by 2025.

As part of the survey conducted in the project "Social economic impacts of management measures introduced by EU Regulation (EU) 2019/1022" (Nisea, 2021), it is highlighted that the majority of respondents (approximately 78%) believe that there has not been a correct passage of information between the national Administration and the sector regarding the contents of the Management Plans, including also area closures.







Cs 1c.FISHERIES RESTRICTED AREAS IN THE WESTERN MEDITERRANEAN SEA: ITALY

Good and bads in terms of good practices

			Evide	ence			Decision	-Making		Follow-up
CS	Manage ment measure	Quality (low, medium, high)	Trust (low, medium, high)	Type (monodiscipli nary, multidisciplinary, interdisciplinary or transdisciplinary)	Fishers' knowledge used (low, medium, high)	Evidence-based with clear objectives (low, medium, high)	Transparency (low, medium, high)	Stakeholders involvement (low, medium, high)	Regionalization (low, medium, high)	Monitoring (low, medium, high)
HS14 M	Pr	High.	Medium-high.	Monodisciplinary	Low.	High.	Medium.	Medium.	Low.	Low-medium .
ERIES RESTRICTED AREAS IN TH	otection of nursery grounds	The scientific underpinning was provided by research institutions using data collected and research conducted in the area.	The justification of the measure was discussed by STECF and adopted by Italian Ministry of Agricultural Policy. Measures relating to space- time closures are perceived by fishers as more suitable than other measures proposed (in particular those relating to the reduction of fishing days).	Research was led by fisheries scientists. Decisions were based on scientific outputs. Socioeconomic analysis was carried out to assess the impact of the measure but only after its implementation.	Existing fisheries (expert) knowledge poorly used in the CS.	The objective was clear: to protect the main nursery areas of hake from bottom trawling.	Decisions are baked up by a scientific process. Results were discussed with stakeholders even if the level of acceptance of the measures is low in some areas.	Fishers and NGOs were involved in the process of setting the protected areas but the final identification of FRAs was taken by the national administration on the basis of internal judgment and scientific evidence	The FRAs of this CS were identified and enforced within the context of the EU WestMedP Map but they only refer to the Italian demersal fleet	Commercial stocks are assessed by STECF and GFCM/SAC. The measure is however recent to have clear results on its impact in relation to the objectives underlying its implementation.
HE										



Cs 1c.FISHERIES RESTRICTED AREAS IN THE WESTERN MEDITERRANEAN SEA: ITALY

Good and bads in terms of good practices

						Crit	eria for Best Prac	tices			
				Evid	ence			Follow-up			
CASE STUDIES			Quality	Trust	Туре	Use fisher's knowledge	Evidence-based	Transparency	Stakh. Involvement	Regionalization	Monitoring
1	FRAs in the Med	Western Med									



- Lessepsian invader, very abundant in E Med
- high predator, significant negative impact on SSF
- paralytic neurotoxin tetrodoxin (TTX)
- marketing and consumption are banned (Reg. 854/2004/EC)
- Management plan in Cyprus for impact mitigation
 - strong lobbying by fishers and the public
 - population control through targeted fishing
 - mitigate impacts on fisheries and ecosystem
 - financing collective groups of fishers (Operational Program), 2012-now
 - Fixed price of 3 €/kg fish delivered for incineration





Before

- research program by the Department of Fisheries and Marine Research of Cyprus, 2009-2010 (Michailidis 2011)
- distribution, growth, reproduction, diet, favourable conditions, possible solutions
- extensive sampling (>60,000 ind.), lab work (sizes, maturity, stomachic contents)
- damage to fishing gear
- potential solutions: exporting for 'fugu', population control, change fishing practices

After

- fishers' empirical knowledge effectiveness of the measure, reduced damages
- no targeted research to assess effectiveness (<u>remaining gap</u>)
- Ecopath model (Michailidis et al. 2019, 2022) zero F → 50% biomass increase



Good and bad in terms of good practices

Good

- Use of fishers empirical knowledge participation in implementation
- Participation of stakeholders in decision-making
- Scientific underpinning of the decision making
- Clear objectives

Bad

- Medium trust limited targeted research to assess effectiveness
- No targeted monitoring
- Medium transparency scientific recommendations not fully followed



Photo: HSR-HCMR; Katsanevakis et al. 2020



Good and bad in terms of good practices

			Evidence		Follow-up				
CS	Management measure	Quality (low,Trust (low, m medium, high) high)	edium,Type (monodisciplinarf y, multidisciplinary, interdisciplinary or transdisciplinary) r	Fishers' knowledge use d (low, medium, high)	Evidence- based with clear l objectives (low, medium, high)	Transparency (low, medium, high)	Stakeholders involvement (lo w, medium, high)	Regionalization (low, medium, high)	Monitoring (lo w, medium, high)
Lagocephalus sceleratus in Cyprus	Reimbursement of fishers for L. sceleratus catches	High. The Medium. No to scientific research to asso- underpinning effectiveness of is based onmeasure has data collectedundertaken, and and researchscientists and conducted inare sceptic. The the area. The(yet unpu effectiveness assessment of theecosystem m measure wasmay increase trus assessed effectiveness. through are largely convi- ecosystem its effectiveness. modelling.	Targeted Transdisciplinary. Tess the There was not the multidisciplinary to be enresearch but fishersy some participated in datal officials collection and the recent implementation of the blished) measure; they were also through very supportive of the odelling measure and drovet st on its decision-making. Fishers nced on	High: Fishers' knowledge and observations were used in the Research Program that supported the measure. They participated through extensive specimen collection.	High. The objective was very clear: to reduce the invasive species population and mitigate its impact on coastal fisheries. There was supporting scientific d evidence through a dedicated a Research extensive d sampling and fieldwork.	Medium. Decisions were backed up by a scientific process and a dedicated Research Program. Nevertheless, the scientific recommendations were not fully followed, as decision-making was affected by lobbying from fishers and was to some extent a political decision to offer socio- economic benefits to coastal fishers.	High. Fishers were highly involved in decision-making and actually this measure was intensively promoted by their association.	High. The Case study was addressing regional challenges and measures. Good regional data available and used.	Low. There is no targeted monitoring of the stock of L. sceleratus, which prevents an accurate assessment of the effectiveness of the measure.



Good and bad in terms of good practices

						Crit	eria for Best Pract	tices			
				Evid	ence			Decision	making		Follow-up
CASE STUDIES		Quality	Trust	Туре	Use fisher's knowledge	Evidence-based	Transparency	Stakh. Involvement	Regionalization	Monitoring	
5	Mitigating impact of invasive species	Cyprus									

Good and bad in terms of good practices from the 4 selected CS

		Criteria for Best Practices									
			Evidence				Decision making				Follow-up
CASE STUDIES			Quality	Trust	Туре	Use fisher's knowledge	Evidence-based	Transparency	Stakh. Involvement	Regionalization	Monitoring
1	FRAs in the Med	Strait of Sicily									
		Jabuca-Pomo Pit									
		Western Med									
5	Mitigating impact of invasive species	Cyprus									

First lessons learnt from CS

- Evidence is used for implementation of measures while:
 - Sometimes lack of complete trust
 - Transdisciplinarity is not always the used approach
 - Use of fisher's knowledge might be limited
- Context is of great importance for the implementation of the measures but:
 - Transparency is not always ensured
 - Stakeholder involvemnet might be limited
 - Regionalization does not always happen
- Monitoring is not a well implemented practice in general

Some general conclusions

- Evidence-based decision-making process would be a good practice, though best available knowledge is not always used;
- ✓ Stakeholders' participation and transparent decision-making process are key;
- ✓ Translation of high-level objectives to the local context (regionalization) is needed and not always accomplished;
- ✓ Context is of great importance in the implementation of a management measure;
- \checkmark Adaptive management should be the basis of EAFM.

Getting feedback from MEDAC members

Key points

- Despite strong scientific underpinning management measures are not always implemented; and vice versa (i.e., despite weak scientific underpinning, measures are implemented)
- Involvement of interested bodies in development of measures is an important factor for success (some measures fully depend on voluntary implementation)
- Governance context is of great importance for the implementation of management measures (who is responsible, on which level of the administration (i.e. EU, local, etc.))

Key questions

- ✓ Are there important aspects related to the successful implementation of EAFM measures that were missed in the analysis?
- Would the conclusions regarding the relevance of context valid for you?
- ✓ Which would be the right place/fora to start the process of implementing new management measures?
- ✓ Which would be the key skills required to be able to successfully improve the implementation of EAFM measures?