



Summary for Policymakers of the MedECC Special Report

Interlinking climate change with Water-Energy-Food-Ecosystems (WEFE) nexus

External review and consultation, comments and responses

All comments were addressed by the authors using the following categories (method used during the IPCC review):

- **Accepted** - text revised - [extended explanation]
- **Rejected** - beyond the approved scope of the report - not supported by the peer-reviewed literature - [extended explanation if needed]
- **Taken into account** - combined with other comment - text revised
- **Noted** - used where no text revision needed
- **Not Applicable** - [section] no longer included in the chapter
- **Editorial**

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No	From Page	From Line	To Page	To Line	Category	Comments	Response	Details
1	0	0			substance	The report reads well, and it provides the most important findings of the FOD. Nevertheless, an introductory paragraph should be added explaining what the objective of the report is and why it is important to policymakers and how they should use it. It would also be useful to add a short description of what the WEFE nexus is at the very beginning, as the level of knowledge among policymakers in the Mediterranean might vary a lot. Most of the statements are fully comprehensible and unambiguous, adding the reference to the FOD. However, in some cases the statements are made too short and only include a very few factors contributing to the element presented. In some cases, other relevant factors should be stated, or mentioning that only the most relevant ones are described.	Accepted	A foreword section has been added to the SPM which explains the objectives of the report: " In this report, the Water-Energy-Food-Ecosystem (WEFE) Nexus is addressed as a key concept for a more resilient adaptation to the climate crisis in the Mediterranean region. It addresses the interlinked water, energy and food security — and their connection with the surrounding ecosystems. Thus, security issues, and therefore adaptation actions, are the key focus of this report, leaving the mitigation consequences of the nexus approach as potential synergies and trade-offs derived from the interconnections among WEFE components. The focus is on the nexus between water, energy and food security extending to the coastal areas of the Mediterranean Sea and does not address the details of marine environment, including ecosystems, and the impact of other factors on its services.". A figure in the SPM has been added to make clearer the concept of the WEFE concept.
2	0	0			substance	It is important to signify the impact of the nexus on public health	Accepted	In the SPM executive summary, reference to human health has been added, i.e. "... , all of which increase the vulnerability of local communities, the impacts on human health and the level of insecurity for the water, energy, food and ecosystems (WEFE)."
3	0	0			substance	It is important to signify the impact of the nexus on public health	Accepted	In the SPM executive summary, reference to human health has been added, i.e. "... , all of which increase the vulnerability of local communities, the impacts on human health and the level of insecurity for the water, energy, food and ecosystems (WEFE)."
4	0	0			substance	General comment on the whole work, it is very interesting and represents a worth guide for implementing the nexus approach, describing the challenges and the needs of the sectors that is going to be managed in a holistic way. The problem that faces the whole subject is that most of the Mediterranean countries still either objecting implementing the approach or if it is adopted, then the adoption suffer from lack of specialists knowledge and experience to implement. That is why there is no quality feedback that can enhance the application and improve the ways of application. Theoretical background of the subject is still more than the practical practices.	Noted	This is one outcome of the report that aims at bringing together both theoretical and practical options based on the evidence available in the Mediterranean.
5	0	0			substance	Some important parts, concepts have been developed in the draft and should be mentioned in the summary, exp mitigation options and strategies...	Noted	The SPM is not expected to detail the concepts. The main concepts are explained in a glossary in the final version of the report.
6	0	0			substance	The document as a whole is well prepared and takes into account the essential elements.	Noted	Thank you
7	0	0			editorial	The document utilizes a citation format such as "{2.2.1}" without offering explicit context regarding the sources to which these citations pertain. Including well-defined references or citations would be	Noted	The brackets explicitly refer to the section of the full report where the content is detailed and where references can be found. It follows the IPCC format for the

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						advantageous, as it allows readers to cross-reference and authenticate the information presented.		Summary for the Policy Makers (SPM). A "Notes" paragraph has been added in a foreword section that explains the meaning of the brackets.
8	0	0			editorial	Throughout the text, there is a recurring utilization of term "high confidence"; however, there is an absence of clarification regarding the origins or assessments that substantiate these confidence levels. It is important to specify the foundations of these confidence assertions, which could encompass references to scientific research, analyses, or other credible sources. By incorporating such references, the statements gain credibility and authenticity.	Accepted	The confidence/robustness qualification follows the IPCC guidelines. The definition in a "Notes" paragraph in a foreword in the SPM.
9	0	0			substance	The document employs specialized terms and abbreviations like "aquatic biota" and "riparian plant communities," along with terms such as "WEFE nexus approach," "intra-Mediterranean trans-national collaboration," and "virtual water." While accuracy in language is crucial, it's equally important to find a middle ground between technical terminology and making the content accessible to policymakers, who are the intended target group for this text.	Accepted	The technical terms have been clarified or reformulated and some have been explained in a glossary added to the final version of the report.
10	0	0			editorial	Some sentences are quite complex and may benefit from simplification for better comprehension. They could be rewritten for clarity. For instance, "Emblematic examples are the action taken by the Union for the Mediterranean, the Center for Mediterranean Integration, the Global Water Partnership-Mediterranean, and the Association of Agricultural Research Institutions in the Near East & North Africa {5.3} (Figure SPM3)"	Accepted	A careful reading has helped simplify complex sentences. Some may still be considered complex for some readers as the comment does not list all sentences considered as complex.
11	0	0			substance	On the basis of the concept of WEFE (Water-Energy-Food-Ecosystems), hydrography and oceanography are considered the sole scientific disciplines that extensively study water due to its crucial influence. Therefore, it is emphasized in the report and executive summary that these disciplines need to be further addressed, and there is a greater need for those data.	Noted	The WEFE nexus is not only hydrography and oceanography, it is the entire climate system with the full water cycle (evaporation, precipitation, runoff), but also human-controlled hydrological system management. We agree that research is needed but there is no literature-based statement to support such an opinion (most research open to new research perspectives). However, the need for data is already addressed (see A.2.1), and one key element from the report that can be better stressed in the SPM is the need for more science-policy interface (see 5.2.3).
12	0	0			editorial	We kindly request to use "Türkiye" instead of "Turkey".	Accepted	Modified in the final version of the report
13	0	0			editorial	Türkiye declares that the term of "Cyprus" neither amount to any form of recognition of the Greek Cypriot administration nor prejudice Türkiye's rights and obligations emanating from the treaty of guarantee and the treaty of establishment of 1960. In this regard Türkiye kindly request to remove the "Cyprus" from this document. The term of	Rejected	It is not the role of the MedECC to determine the names of the countries. MedECC complies with the official United Nations list which explicitly mentions Cyprus as one of the United Nations member states, see https://www.un.org/en/about-us/member-states#gotoC .

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						"Cyprus Island" can be written if it is desired to be specified geographically.		
14	0	0			substance	<p>Comments on form</p> <ul style="list-style-type: none"> • The summary for decision makers seems a little too long. It would gain in relevance if it were shortened a bit. • The descriptive part (evaluation; impacts; interactions; etc.) seems a little too long in comparison with the part relating to reflections and recommendations. 	Accepted	Summary shortened and more focus on needed actions (which are literature-supported and not recommendations from the authors of the report)
15	0	0			substance	<p>It would have been desirable to expand and deepen the section recommendations and suggestions for action, particularly in terms of organization and governance, particularly at the levels:</p> <ul style="list-style-type: none"> • Local (Hydraulic Basins; etc.); • National (Interministerial Commissions; public actors – private actors; advisory and guidance institutions; etc.); • Regional: Mediterranean (Union for the Mediterranean;); • Global (worldwide): Governments (United Nations; etc.); United Nations system (FAO;); All international players (World Water Forum; etc.). <p>In this regard, it would have been desirable to make specific recommendations: International Water Agreement (like the Paris Climate Agreement); etc.</p>	Rejected	It is not in the MedECC's role to provide recommendations and suggestions; it only provides technical and scientific explanations and literature-based assessments.
16	0	0			substance	<p>Given the crucial nature of the impacts of climate change in the Mediterranean, greater impacts in the Mediterranean compared to other regions of the world (hot spot) and exacerbated constraints and pressures in the Mediterranean, it would have been desirable:</p> <ul style="list-style-type: none"> • to consider the Mediterranean region as a case study and to highlight the importance of concerted action at the Mediterranean level for generalization at the global level; • to allow the Mediterranean region to make proposals for the global level (contribution to international arrangements; global governance; etc.). 	Noted	Even though this remark is relevant as the Mediterranean Basin can be seen as a "small-scale laboratory" of climate change, the report authors' knowledge, no article discusses the global generalisation of a "climate action" in the Mediterranean basin.
17	0	0			editorial	Suggestion to apply the item 19 all over the text, like lines 30 to 33 in page 9	Noted	The sentences highlighted in bold are broader statements which are further explained in the paragraph. The sentence that the reviewer suggests putting in bold is not considered as a broader statement.
18	0	0			substance	Challenges related to overexploitation of water resources, unsustainable water use and water shortages, combined with a more positive perception of the degree to access to water and sanitation in Mediterranean countries are due to a lack of sound water governance and in particular right implementation of Integrated Water Resources	Accepted	The sentence "Challenges related to overexploitation of water resources, unsustainable water use and water shortages, combined with a more positive perception of the degree to access to water and sanitation in Mediterranean countries are due to a lack of sound water governance and in particular right implementation of Integrated Water Resources Management (IWRM) {1.2}." has

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						Management (IWRM). The implementation of IWRM through its four key dimensions, i.e. enabling environment, institutions and participation, management instruments and financing, are the basis for a sound water governance and for achieving SDG6 and related, such irrigation for food security, mitigation of climate change and adaptation. The four components of IWRM and ensuring WEFE nexus from the water perspective, and this is not reflected in the report. THIS ESSENTIAL ASPECT OF THE NEED TO FULLY IMPLEMENT IWRM FOR ENSURING WEFE NEXUS FROM THE WATER PERSPECTIVE SHOULD CLEARLY BE REFLECTED IN THE SPM.		been added in paragraph A.2.2 of revised SPM and in Section 1.2 of Chapter 1 based on the MedECC MAR1 report.
19	1	6	1	6	substance	Could you indicate the % of coastal water pollution (if possible, with a breakdown by plastic, toxic metals and emerging pollutants) that originates respectively from rivers and coastal lands to the sea?	Noted (addressed in Chapter 2)	Such level of information is not expected in the SPM. Details on coastal pollution can be found in Chapter 2.
20	3	3	3	9	substance	Add a line or two about potential regional collaborations or technological advancements that could mitigate some of these challenges.	Not applicable	No longer included
21	3	3	3	20	substance	Please avoid redundancies	Accepted	Executive summary shortened and reformulated to avoid redundancies and enhance clarity
22	3	3	3	30	substance	Please "inject" in the Exec summary the ideas of culture heritage: culinary (Mediterranean diet: see page 6 line 29) and indigenous knowledges (Ancestral Hydraulic Systems, agricultural practices -see page (lines 25-26) and biodiversity (see page 4 line 35	Accepted	The first sentence of the executive summary is now: " The Mediterranean Basin, cradle of an ancient cultural heritage, culinary traditions, indigenous knowledge of agricultural practices and biodiversity, is often referred to as a "climate change hot spot", as the regional projections of global climate change are exacerbated with larger rates than globally and displays high susceptibility of specific critical resources (water, agriculture, etc.) and socio-economic elements (adaptive capacity, human population growth, etc.)."
23	3	3	3	42	editorial	Separate paragraphs: P1 : from the Mediterranean... (line 1) to..WEFE Nexus (line 23) / P2 : from Among key challenges (end of line 23)...to undermine energy security (line 30) / P3: two main pathways (line 30) ...to Mediterranean (line 42)	Accepted	Corrected as suggested
24	3	3	3	3	substance	please change "probably one region" to "...ONE OF The regions.."	Not applicable	No longer included
25	3	3	3	3	substance	take out "probably" (as it certainly is, and not only probable)	Not applicable	No longer included
26	3	3			editorial	I would remove "probably" and leave "is one of the regions". With the data in hand (section 1.2 from the whole report) we can assure is one of the areas most challenges in all WEFE sectors, therefore also in its interlinkages	Not applicable	No longer included

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27	3	3	3	5	Substance	Please, improve the start of the sentence.	Not applicable	No longer included
28	3	5	3	11	editorial	The meaning is not clear. Kindly reduce the length of the sentence by splitting it into two.	Not applicable	No longer included
29	3	5	3	11	editorial	I find difficult to follow this very long single sentence (6 full lines). Especially the connection of "as well as ecosystems health" may not be quite clear.	Not applicable	No longer included
30	3	7	3	8	substance	Consider adding the impact of tourism as a factor that affects the vulnerability of local communities	Accepted	The following sentence has been added in the executive summary: "Population and economic growth, agricultural intensification, urbanisation, high pollution levels of air, land, seawater, and freshwater, tourism and increasing resource demand and inequality, increase the vulnerability of local communities, the impacts on human health and the level of insecurity for the water, energy, food and ecosystems (WEFE)."
31	3	7	3	7	substance	Remplacer la croissance démographique par croissance démographique et économique	Accepted	The following sentence has been added in the executive summary: " Population and economic growth, agricultural intensification, urbanisation, high pollution levels of air, land, seawater, and freshwater, tourism and increasing resource demand and inequality, increase the vulnerability of local communities, the impacts on human health and the level of insecurity for the water, energy, food and ecosystems (WEFE)."
32	3	9	3	10	editorial	Introduce WEFE in full length and then use the abbreviation	Not applicable	No longer included
33	3	10	3	10	editorial	please add ecosystems to in between brackets: WEFE element (water security, energy security, food security, and ecosystems).	Not applicable	No longer included
34	3	10	3	10	editorial	please delete "as well as ecosystems health and"	Not applicable	No longer included
35	3	10	3	10	substance	WEFE elements (water, energy, food, ecosystems), add Ecosystems	Not applicable	No longer included
36	3	10			editorial	The term security is very common, but it seems more appropriate for policy makers not familiarised with the term to use «guarantee» for each and every pillar.	Not applicable	No longer included
37	3	10	3	11	Editorial	The sentence "and may lead to conflicts of usage" it is within a quite long paragraph, I will instead, put it in a different sentence after a dot. My proposal: "All these drivers may lead to conflicts of usage".	Not applicable	No longer included
38	3	11	3	11	substance	"spatial complementarity" needs simple explanation, as the target audiences, decision makers, might not understand what it means.	Not applicable	No longer included
39	3	12	3	42	substance	The summary must be concise, simple and encompass all components of the document	Accepted	Executive summary shortened and reformulated to avoid redundancies and enhance clarity

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40	3	12			editorial	What does it mean to be a climate change hot spot? Better to explain for external readers.	Accepted	The first sentence of the executive summary has been modified to clarify the concept of climatic hotspot: "The Mediterranean Basin (...) is often referred to as a "climate change hot spot", as the regional projections of global climate change are exacerbated with larger rates of regional climate change than globally and displays high susceptibility of specific critical resources (water, agriculture, etc.) and social elements (adaptive capacity, human population growth, etc.)."
41	3	14	4	18	substance	Consider adding a diagram illustrating the WEFE nexus and its interdependencies.	Accepted	Figure illustrating WEFE and its interdependencies has been added.
42	3	14	3	15	substance	Consider adding the impact of tourism as a factor that affects the vulnerability of local communities	Accepted	The following sentence has been added in the executive summary: "It is also due to population and economic growth, agricultural intensification, urbanisation, tourism and increasing resource demand and inequality, all of which increase the vulnerability of local communities, the impacts on human health and the level of insecurity for the water, energy, food and ecosystems (WEFE)."
43	3	14	3	15	substance	I will add among the main causes of the climate change exacerbating causes, the touristic pressure.	Accepted	The following sentence has been added in the executive summary: "It is also due to population and economic growth, agricultural intensification, urbanisation, tourism and increasing resource demand and inequality, all of which increase the vulnerability of local communities, the impacts on human health and the level of insecurity for the water, energy, food and ecosystems (WEFE)."
44	3	14	3	17	substance	I believe that "high pollution levels of air, land, seawater, and freshwater" in the Mediterranean region should also be mentioned as part as of the issue.	Accepted	Added as suggested
45	3	16	3	19	editorial	Please add a reference to the key messages of the UN water Conference held in New York from 22-24 March 2023 (Source: Summary of proceedings by the President of the General Assembly - UN Conference on the midterm comprehensive review of the implementation of the objectives of the international decade for action "Water for Sustainable Development", 2018–2028): The interconnectivity of water, climate change and food production was reviewed during the plenary meetings, with an emphasis on the water-food-energy nexus. Many delegations urged a focus on synergies to advance Goal 6, and called for prioritizing water when discussing climate, food systems, and energy, as well as industrial processes, supporting holistic and integrated management of water. Conclusions of the Interactive Dialogues also concluded that climate-resilient water management requires internal defragmentation and external integration of current water management systems. This can be achieved by 1) Mainstreaming integrated policy frameworks which combine integrated water resources management (IWRM) with other holistic water-related approaches that link the interconnected ecosystems of the hydrological cycle with the associated socioeconomic	Noted	References are included in the report. In the SPM only references to the relevant sections in the report are made.

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						processes. 2) Developing and adopting national mechanisms for cross-sectoral coordination and mutually agreed policies for cooperative water-related adaptation.		
46	3	17			editorial	Replace "resource" with "Resources"	Accepted	Corrected as suggested
47	3	25	3	28	substance	It is state that "An assessment of the WEFE nexus in the Mediterranean shows a strong biophysical correlation between water, food and ecosystem elements...". It would be advisable to include a further / more in detail explanation with respect to the correlation among these elements.	Not applicable	No longer included
48	3	28	3	30	editorial	Energy is also heavily correlated to what? Kindly revise.	Not applicable	No longer included
49	3	28	3	30	editorial	The sentence "Energy is also heavily correlated (...) energy security" is confusing. If on the sentences before you speak about the correlation of all WEFE nexus, it is confusing to say that "Energy is also correlated", since it is one of the WEFE. Also, it is not clear to what is correlated. I guess you speak about the linkages between Energy and Food?	Not applicable	No longer included
50	3	30	3	42	editorial	These lines present two ideas: first the identification of pathways for action that have been identified, and then the description of the current situation (Line 34). I think we should start with the description of the current situation and then state the possible pathways (So: After describing the strong correlations between WEFE and the deterioration in cascade, we show what is the problem of the current situation (lines 34 onwards: "However, the current situation is not satisfactory (...) actions in the Mediterranean"; and then we describe what we can do (line 30): "Two main pathways for action are identified". NOTE: In case the "two main pathways for actions identified" refers to current actions being implemented, then the sentence needs to be more clear about this. ex: Two main pathways for actions being currently implemented are (1) etc...	Accepted	We made clear the different ideas (present status, solutions, concept to implementation gap and needed actions) in different paragraphs.
51	3	30	3	33	substance	The undervaluation of technological effects, in addition to being debatable, seems contradictory with the statement "two main paths for action are identified:...", both being technological in nature.	Accepted	We thank the reviewer for this comment which helps clarify the message. We now identify three pathways: technological, nature-based and social solutions.
52	3	33	3	33	substance	add to the pathways: change in consumption patterns.	Accepted	Corrected as suggested
53	3	35			editorial	Better to explain what the expression concept-to-operation gap means.	Accepted	As an introduction of paragraph C.3., a sentence explaining the concept-to-operation gap has been added: "A concept-to-operation gap has been identified in the Mediterranean context meaning that the current situation is not satisfactory for the WEFE in regard to nexus approach expectation."

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54	3	37			substance	I suggest to add the word (and awareness) after the word limited knowledge	Accepted	Corrected as suggested
55	3	38			substance	comment on the point (3), I think the cost of the nexus approach does not cost that so high, if finance allocation for the sectors allocated wisely. Since nexus application depends mainly on infrastructures which needs to be enhanced and the interlinkages between sectors.	Accepted	The point stresses on the higher cost in the short term which slows down the nexus approach application. Such an issue has been documented in the literature and does not contradict the fact that its cost in the longer term should be reduced. However, it has been clarified in the revised version which makes clear that the issue is short term.
56	3	42	3	43	editorial	The Mediterranean region is an example of adaptation to a wide variety of pressures causing stress in natural resources along history, and water in particular. It has the ideal conditions for producing healthy food, attracting livelihoods and tourism and providing energy. The 4th Mediterranean Water Forum, held in Malta in December 2021, was a platform for exchanging and consolidating know-how and experiences in the field of water in the Mediterranean. It identified effective responses to ensure water security. This theme is of crucial importance for the Mediterranean where demographic changes, socio-economic challenges and the effects of climate change are constantly threatening water security. The session held during the 9th World Water Forum in Dakar in 2022 also showed several examples.	Accepted	The sentence has been modified in order not to let imagine that nothing has been done. The sentence has been reformulated as follows: "Despite existing platform for exchanging and consolidating know-how and experiences in the Mediterranean, series of actions and interventions need to be enhanced to..."
57	4	1	4	2	substance	keep the title. it clearly announces the issue	Noted	The title has been kept.
58	4	4	8	41	substance	The Interconnection between water, energy, food, and ecosystem security must be simplified to policy maker in order to take the right decision	Accepted	A figure SPM1 has been added to make clearer the interconnections of the WEFE components
59	4	4	4	15	editorial	I miss some data on T rise, drought and precipitation to make it more punchy for policy makers (I see data is also in section 1,3,1 but I think that some of it must be here as well, or at least a reference to 1,3,1)	Accepted	Values have been added in paragraph A.1.1.
60	4	4	4	9	substance	Refer to a section of the main report	Accepted	Report section 1.2 added
61	4	5	4	7	substance	Add some figures to illustrate increase in temperatures and changes in rainfall, when possible, as it is done for sea level rise (lines 16-17). Adding figures can support policymakers seeing "how bad" the situation is. For instance: Average annual air temperatures are now approximately 1.5°C higher than during the preindustrial period, well above current global warming trends (+1.1°C). Without additional mitigation, regional temperature increase will be of 2.2°C in 2040, possibly exceeding 3.8°C in some regions in 2100. Summer precipitation will decrease by 10 to 30% according to the area. Extreme events (heat waves, droughts, floods and fires) become more frequent.	Accepted	Values have been added in paragraph A.1.1.

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62	4	5			Editorial	Explain the acronyms of IPCC AR6 and MedECC to make them clearer to policy makers who may not be aware of the meaning of these acronyms	Accepted	An acronym appendix has been added
63	4	5	4	5	substance	Please, declare the acronym of IPCC AR6	Accepted	An acronym appendix has been added
64	4	9	4	9	editorial	Full stop missing.	Accepted	Corrected as suggested
65	4	10	4	12	substance	It would be advisable to explain that there are different types of droughts (meteorological, hydrological, agricultural, and socioeconomic)	Accepted	Corrected as suggested in paragraph A.1.1.: "Among the main risk factors identified in the Mediterranean is drought (meteorological, hydrological, agricultural and socio-economic droughts), due to trends characterised by a widespread increase in evaporative demand through temperature increase, and a decrease in precipitation, leading to an increase of the duration and intensity of meteorological and hydrological droughts {1.2}."
66	4	10	4	12	substance	It is state that "The main risk factor identified in the Mediterranean is drought, due to trends characterised by a widespread increase in evaporative demand and a decrease in precipitation". It might be useful to add ..."Leading to an increase of the duration and intensity of meteorological and hydrological droughts".	Accepted	Corrected as suggested in the SPM: "Among the main risk factors identified in the Mediterranean is drought (meteorological, hydrological, agricultural and socio-economic droughts), due to trends characterised by a widespread increase in evaporative demand through temperature increase, and a decrease in precipitation, leading to an increase of the duration and intensity of meteorological and hydrological droughts {1.2}.". It is also included in Chapter 1: "The vulnerability of the Mediterranean population may thus increase with higher probability of occurrence of events conducive to floods as well as longer and more severe droughts (meteorological, hydrological, agricultural and socio-economic droughts – Fader et al., 2020) cause by evaporative demand and temperature increase and precipitation decrease (Drobinski et al., 2020a)"
67	4	11	4	11	substance	when we talk about drought may be necessary to differentiate between hydrological and meteorological drought, or mention both of them. They are correlated but not always one means the other. In page 6 sentence 32 it is differentiated.	Accepted	Mention to the 4 kinds of droughts have been added (meteorological, hydrological, agricultural, and socio-economic)
68	4	12	4	12	substance	What about the temperature increase	Accepted	The following sentence has been modified in paragraph A.1.1 to address the reviewer's comment: "Among the main risk factors identified in the Mediterranean is drought (meteorological, hydrological, agricultural and socio-economic droughts), due to trends characterised by a widespread increase in evaporative demand through temperature increase, and a decrease in precipitation, leading to an increase of the duration and intensity of meteorological and hydrological droughts {1.2}."
69	4	13	4	14	substance	Refer to a section of the main report	Accepted	Report section 1.2. added
70	4	14	4	17	substance	the sentence needs reference	Noted	In the IPCC protocol adopted by MedECC, the brackets indicate the section of the full report where the statement is addressed and where references can be found; they are not supposed to be included in the SPM.

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71	4	15			substance	what are the implications or consequences of the increasing acidification in seawater so why is it important to fight against it.	Accepted	Some consequences have been listed in paragraph A.1.1: "the consequences are the increasing acidification of seawater likely reducing marine productivity, affecting species distribution and triggering local extinction, ..."
72	4	16	4	16	substance	mentionner dans l'élévation du niveau moyen de la mer le risque de la submersion marine	Accepted	Now specified in paragraph A.1.1: "It could reach between 40 and 100 cm depending on the emission scenario by 2100, increasing the risk of coastal flooding (<i>high confidence</i>)".
73	4	17	4	18	substance	The sentence is not clear	Accepted	What makes the sentence unclear is probably the range of sea-level rise and the association with the "emission scenario". The sentence has been modified as follows: "It could reach between 40 cm for the lowest greenhouse gas emission scenario and 100 cm for the highest emission scenario by 2100, increasing the risk of coastal flooding (<i>high confidence</i>)".
74	4	17	4	19	substance	This sentence should include ocean warming.	Noted	Ocean warming is listed in climate hazards at the beginning of the paragraph A.1.1 which causes sea-level rise.
75	4	19	4	27	substance	part of agriculture sector, specially livestock should be mentioned , as livestock is source of food security	Accepted	In the budget for the Mediterranean, 12% of emissions include industrial process emissions, indirect emissions (for nitrous oxide only), agriculture (agricultural soils, agricultural waste burning, enteric fermentation, manure management) and waste. It has been made clear in the revised SPM in paragraph A.1.2. We do not refer explicitly to livestock even though we agree with the reviewer on the statement, as livestock may include direct emissions only, or direct and indirect emissions so to avoid the attribution issue, we split the emissions following the JRC (2019) report on fossil CO ₂ and GHG emissions of all world countries.
76	4	19		27	substance	well: good transition	Noted	Thank you
77	4	19	4	27	substance	A reference to protection of blue carbon ecosystems should be made as they contribute to mitigate climate change.	Noted	In the revised report and SPM, we make clear that the focus is not on mitigation solutions but on preservation of resources (adaptation) which have impacts on carbon storage.
78	4	19	4	20	substance		Noted	No comment
79	4	19	4	20	substance	Refer to section 1.2	Accepted	Corrected as suggested
80	4	20	4	23	substance	"All Mediterranean countries have significant potential to mitigate climate change through changes in agricultural management that increase carbon storage in soils" What about the potential to mitigate climate change through changes that are related to more sustainable ecosystem and forest management? Kindly reconsider the original statement.	Accepted	Introduced but the sentence moved to paragraph B.5.2: "Policies and actions that operate across the food system, promoting sustainable ecosystem and forest management that include changes in agricultural and livestock management to increase carbon storage in soils (e.g., agroecological approaches such as agroforestry or well-managed extensive livestock systems) and simultaneously targeting behavioural change, including reduce food loss and waste or influence dietary choices (e.g. reducing overall consumption of meat), enable more sustainable land-use management, enhance food security, reduce water use, water contamination, soil degradation, promote biodiversity conservation and can

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								have a significant potential to adapt to climate change and reduce emissions, among other benefits (3.2.2; 3.2.3; <i>high confidence</i>)."
81	4	22	4	23	substance	Add, among others or as for instance, since changes in agriculture and accelerated energy transition are not the only 2 practices that can mitigate climate change. Transitioning to a circular economy could also be added.	Noted	In the revised report and SPM, we make clear that the focus is not on mitigation solutions but on preservation of resources (adaptation) which have impacts on carbon storage. We however added in paragraph B.5.4: "Adaptation and mitigation solutions can range from those more related to ecological and consumption-reducing behaviours to those more related to scientific and technological innovation {3.2}." We no longer address mitigation actions specifically, we address mitigation when discussing energy challenges in the WEFE context (paragraphs A.1.2, A.2.4) and as a synergies from adaptation solutions in the food sector and ecosystem preservation (paragraph B.5.2).
82	4	23	4	23	substance	It should be clarified that the energy transition is away from fossil fuels and that consumption and lifestyle patterns can have a great potential to reduce GHG emissions in regards to transport emissions.	Accepted	Added in paragraph B.5.4.: "Adaptation and mitigation solutions can range from those more related to ecological and consumption-reducing behaviours to those more related to scientific and technological innovation {3.2}."
83	4	23	4	25	substance	It should be useful to give examples: ... such as ingenious irrigation and agroforestry systems.	Accepted	These options have been added later and this sentence has included more potential actions following reviewer's suggestions
84	4	28	4	41	substance	OK /Key words: insecurity, disparities, instability, multiple interlinkages	Noted	Thank you
85	4	30	4	30	substance	Insecurity is the rule rather than the exception in the Mediterranean region. This is not accurate enough as there are major and significant difference between the north and the south of the region. The sentence needs to be more specific or deleted.	Accepted	Added "in many countries"
86	4	30		38	editorial	Align the text body with the other lines above and below	Noted	It will be done in the final version of the SPM
87	4	30	4	32	substance	Please, improve the start of the sentence.	Accepted	Sentence has been rephrased
88	4	33	4	33	substance	33: after "with large dependence on fossil fuels", add: mostly imported. (Although it is mentioned in the energy paragraph, good to add here also.)	Accepted	Corrected as suggested
89	5	1	5	10	substance	concise and clear	Noted	Thank you
90	5	5	5	7	substance	There is a need to define the scores here	Accepted	A "Notes" paragraph in a foreword section has been added explaining the SDG index.
91	5	5	5	10	substance	Better to show the numbers per sub-region to have a clearer indication.	Noted	This is the SPM and more details can be found in the relevant chapter
92	5	5	5	10	editorial	In the first sentence, SDG score is not introduced, so is not clear what the general score of 73,5 is about. Consider reformulating and if possible add a bit more information on who and how is it measured (e.g: SDG scores measures the progress of a territory to the 17 SDGs accomplishment)	Accepted	A "Notes" paragraph in a foreword section has been added explaining the SDG index.

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93	5	5	5	10	substance	Better to show the numbers per sub-region to have a clearer indication.	Noted	This is the SPM and more details can be found in the relevant chapter
94	5	5	5	6	editorial	I recommend to add some contextual information for a better understanding of "the general score of 73.5 of the Mediterranean region", which presently comes too abruptly: Score of what? Which possible range?	Accepted	A "Notes" paragraph in a foreword section has been added explaining the SDG index.
95	5	7	5	7	substance	Please briefly describe SDG index or define it	Accepted	A "Notes" paragraph in a foreword section has been added explaining the SDG index.
96	5	7	5	7	substance	It would be useful to have a definition of what is meant by "SDG index"	Accepted	A "Notes" paragraph in a foreword section has been added explaining the SDG index.
97	5	8	5	8	editorial	MENA should be explain (first occurrence)	Accepted	An acronym appendix has been added
98	5	9	5	10	substance	SDG scores are not consistent with the 2023 SDG report	Accepted	We now specify that these are the 2022 values in paragraph A.2.1.
99	5	11	6	22	substance	about Water (wastewater reuse?), Food, Energy and marine and terrestrial ecosystems : laconic sentences / well written / The curly brackets which refer to the FOD are relevant	Noted	Thank you
100	5	11	5	19	substance	The text primarily discusses physical and environmental factors contributing to water scarcity and conflicts. However, it's crucial to also consider the socioeconomic dimensions, such as poverty, unequal access, and governance, that play a significant role in exacerbating water insecurity.	Accepted	Reference to unequal access has been added in paragraph A.2.2.
101	5	11	5	11	substance	Make the remark on disparities between sub-regions, countries and within countries clearer, when talking about water and food security situation.	Accepted	The revised sentence is "From the perspective of SDG 6 large disparities between countries exist and most of the countries have significant challenges to address {4.1}." in paragraph A.2.2.
102	5	11	5	19	editorial	Suggestion to add text on SDG6 "Ensure availability and sustainable management of water and sanitation for all": According to "UNEP (2021). Progress on Integrated Water Resources Management. Tracking SDG 6 series: global indicator 6.5.1 updates and acceleration needs", improvements in the way we use and manage our water are urgently needed to sustain our development. Addressing the complexity of competing and increasing demands and stresses on water resources requires coordinated action on financing, policy and legal frameworks, transparent management of data and information, and multi-stakeholder planning across all sectors and at all levels. In other words, there is a clear need to implement IWRM, as evaluated by SDG indicator 6.5.1, to be able to balance competing social, economic and environmental demands and impacts on water resources in order to face water scarcity issues	Accepted	Mention was made to SDG6 to address all other SDGs and a reference to IWRM has also been added in paragraph A.2.2: " Water plays a critical role in maintaining healthy ecosystems, reducing global disease, empowering women, enhancing the welfare and productivity of populations, adapting to climate change, and fostering peace, acting as a vital connection between the climate system, human society and the environment, reaching SDG 6 (clean water and sanitation) is essential to achieve all other SDG, which is of particular importance in the Mediterranean basin {1.1}....Challenges related to overexploitation of water resources, unsustainable water use and water shortages, are due to a lack of sound water governance and in particular, right implementation of Integrated Water Resources Management (IWRM) {1.2}."

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103	5	11	5	19	substance	missing some reference to the increase of extreme events: droughts and floods as other facts that will increase water insecurity	Accepted	Water insecurity has been explicitly linked to drought and flood-induced risk on infrastructure in paragraph A.2.2.
104	5	12	5	12	substance	Libya has been mentioned, how about Syria?	Noted	Libya is not mentioned in this sentence of the SPM anymore: "From the perspective of SDG 6 large disparities between countries exist and most of the countries have significant challenges to address {4.1}." According to Table 4.1 of the full report, in 2020 Libya is found facing major challenges while Syria is found facing significant challenges like other countries.
105	5	12	5	12	substance	Evoquer le problème des inondations massives et des tempêtes qui ont frappées dernièrement la Libye	Rejected	This level of detail is not for the SPM and there is no article already published dealing with climate and 2023 flood in Libya to which we could refer.
106	5	14	5	14	substance	Include "but the quality of water also decreases with increase of water salinity due to groundwater overexploitation and the presence of pollutants (e.g., nutrients, heavy metals)." See section 2.3.1 in First Order Draft (FOD).	Accepted	Corrected as suggested in paragraph A.2.2: "Already, 180 million people suffer from water scarcity in the Mediterranean, but the quality of water also decreases with increase of water salinity due to groundwater overexploitation and the presence of pollutants (e.g., nutrients, heavy metals) {1.2; 2.2; 2.3.1}."
107	5	15	5	15	editorial	You introduce the acronym MENA here, but it has been used before (at least line 8 of same page)	Accepted	An acronym appendix has been added
108	5	15	5	19	substance	It would be advisable to have a more detailed explanation of the difference between drought and water scarcity (the concept of aridity could also be defined).	Noted	Such level of detail is not in the SPM. The difference between droughts/water scarcity/aridity has been detailed in revised Chapter 1.
109	5	17	5	18	substance	The text suggests that water access is not generally at stake in the MENA region. However, it's important to note that access to safe and clean water can still be a significant issue in certain areas within the region, especially in marginalized/peripheral communities or conflict-affected zones. This statement should be nuanced to accurately reflect the variability in water access across the region.	Noted	The following paragraph has been added in Chapter 1 (footnote 3) to clarify the different concepts: "Water scarcity and drought are related but distinct concepts, and both can have significant impacts on the Mediterranean region. Water scarcity has been defined by FAO (2012) as a gap between available supply and expressed demand for freshwater in a specified domain, under prevailing institutional arrangements and infrastructural conditions. It is a chronic condition that occurs when the renewable freshwater resources are insufficient to meet the needs of people and ecosystems. It can be caused by various factors, including population growth, inadequate water management, climate change, and inefficient water use practices. On the other hand, drought is a type of extreme climate that is characterized by prolonged dry weather conditions, which disrupts the hydrological balance (EDO 2023). It is a natural and temporary phenomenon that arises when an area experiences significantly less rainfall than usual for an extended duration, resulting in water shortages. Drought conditions are associated with a lack of precipitation, soil moisture deficit, and low water reservoir storage, which impacts a wide range of sectors. It's important to distinguish drought from aridity, which is a long-term climatic feature, and water scarcity, which is a situation where the available water resources are insufficient to meet water demand.". However, such level of detail is not expected for the SPM.

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110	5	18	5	19	substance	While the text mentions that water scarcity can lead to conflicts among users such as agriculture and tourism, it doesn't provide a comprehensive explanation of the complex factors contributing to conflicts related to water scarcity. Conflicts over water are influenced by a range of socio-political, economic, and environmental factors, and attributing them solely to water scarcity might oversimplify the issue.	Accepted	The sentence was revised as follows: "Water shortage can lead to competition between sectors, including agriculture, industry, drinking water supply and tourism {1.2}. It can also lead to conflicts when combined with socio-political, economic, and environmental factors {1.2}."
111	5	19	5	19	editorial	I would say agriculture and tourism are sectors, not users. If you say conflict among users it gives the impression of individual people	Accepted	Corrected as suggested in paragraph A.2.2.: "Water shortage can lead to competition between sectors, including agriculture, industry, drinking water supply and tourism {1.2}."
112	5	19	5	19	substance	Mentionner les autres utilisateurs de l'eau (secteur industriel et l'alimentation en eau potable)	Accepted	Corrected as suggested in paragraph A.2.2.: "Water shortage can lead to competition between sectors, including agriculture, industry, drinking water supply and tourism {1.2}."
113	5	20	5	20	substance	Make the remark on disparities between sub-regions, countries and within countries clearer, when talking about water and food security situation.	Accepted	The revised sentence in paragraph A.2.2 is "From the perspective of SDG 6 large disparities between countries exist and most of the countries have significant challenges to address {4.1}." and in paragraph A.2.3. "Indeed, SDG 2 (zero hunger) is the one presenting the most critical situation of all WEFE elements (...) None of the Mediterranean countries achieved the targets by 2020 and for all of them either significant or major challenges remain with however disparities between countries."
114	5	20	5	32	substance	missing some reference about crops yields and agriculture changes	Accepted	The sentence has been added in paragraph A.3.2.: "Decrease in crop yields, caused by reduced water availability and heat stress, is likely to affect staple crops such as olives, grapes, fruits, cereals, and vegetables. Levels of projected changes vary depending on countries, scenarios and crops, ranging from -80% for sunflower in Spain and to +26% for olive in the whole Mediterranean Basin (medium confidence)."
115	5	21	5	21	substance	Perhaps it would be more accurate to change "overnutrition" to "malnutrition" as stated in line 30.	Noted	Malnutrition is already mentioned in the cited sentence. It is split into its 3 burdens: under and overnutrition and hidden hunger
116	5	31	5	32	editorial	The link between malnutrition, degradation of ecosystems and greenhouse gas emissions should be clarified	Not applicable	No longer included. This part of the sentence does not address food insecurity and the link between food/ecosystems and greenhouse gas emission is addressed later in the SPM in paragraphs B.2.1 ("Industrialisation of agriculture leads to ecological deterioration, characterized by deforestation, amplified emissions of greenhouse gases, escalated energy consumption, and augmented water and fertilizers usage") and B.2.2 ("Increased consumption of animal-based products due to population growth and lifestyle changes is responsible for an increase in greenhouse gas emissions and the disruption of local and regional nitrogen cycles, causing relevant impacts on ecosystems health (<i>high confidence</i>)."):

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117	5	31	5	32	substance	on my view, this sentence "as well as degradation of ecosystems and greenhouse gas emissions" does not fit with the rest of the paragraph focused on food security and shifting in nutrition trends.	Accepted	We agree this part of the sentence does not address food insecurity and the link between food/ecosystems and greenhouse gas emission is addressed later in the SPM in paragraphs B.2.1 ("Industrialisation of agriculture leads to ecological deterioration, characterized by deforestation, amplified emissions of greenhouse gases, escalated energy consumption, and augmented water and fertilizers usage") and B.2.2 ("Increased consumption of animal-based products due to population growth and lifestyle changes is responsible for an increase in greenhouse gas emissions and the disruption of local and regional nitrogen cycles, causing relevant impacts on ecosystems health (<i>high confidence</i>)."):
118	6	1	6	9	substance	The focus is on policies to reduce energy demand (ignoring the socio-economic consequences) but hardly anything is said about a necessary energy transition towards renewable energies.	Accepted	Sentences have been added in the considered paragraph: "Renewable energy consumption only accounts for 11% of the total energy consumption in 2020, about nine percentage points lower than the European Union and three percentage points lower than the global level {1.2}. Reducing energy demand, including increased energy efficiency and energy sufficiency, is needed to reduce environmental degradation, but the region is also in strong need to explore alternatives to guarantee energy security, particularly given the absence of credible policies to reduce energy demand. The Mediterranean countries have significant potential to mitigate climate change through an accelerated energy transition, including renewable energies deployment {1.2} that requires effective land and sea use planning to avoid conflicts with other uses {2.2.4}."
119	6	1	6	9	substance	A fixed figure is given for the use of renewable energy (11%), which I get the impression is out of date, and the growth expectations are ignored, which, in my opinion, are a relevant aspect in this analysis.	Accepted	Figure from 2020 published in the Bartoletto (2021): Bartoletto, S. A Post-Carbon Energy Economy: Implications for the Mediterranean Countries, IEMed., Mediterranean Yearbook 2021, 291-294 (2021). Available at https://www.iemed.org/wp-content/uploads/2021/11/Post-Carbon-Energy-Economy-Mediterranean_MedYearbook2021.pdf .
120	6	3	7	9	substance	Provide examples from specific Mediterranean countries to give a more tangible understanding of the issues.	Noted	Some examples are given for some countries regarding energy access issues in paragraph A.2.4.: " From the perspective of SDG 7 (affordable and clean energy), two Mediterranean countries (Malta and Portugal) had already achieved the SDG by 2020 (...). The challenge for nearly all Mediterranean countries, except Algeria, Egypt and Libya, is their strong energy dependence on imports. (...) The share of electricity produced from oil, gas and coal sources ranges from less than 10% in France to more than 90% in Algeria, Croatia, Cyprus, Egypt, Israel, Jordan, Lebanon, Libya, Malta, Syria and Tunisia. However, in general, Mediterranean countries are still highly dependent on fossil fuels to produce electricity {3.2; 4.1}."
121	6	7	6	7	substance	except in, add: Lebanon	Rejected	Not supported by figures in Table 4.1. compiled from World Bank (2022) data
122	6	10	6	22	substance	The text lists challenges faced by both marine and terrestrial ecosystems but does not provide specific details about the nature of these challenges. Including examples or specific instances of biodiversity loss,	Accepted	Details have been added in paragraph A.2.5.: "Both marine and terrestrial ecosystems face significant challenges in the Mediterranean where most of the countries are not on track to achieve SDGs 14 (life below water) and 15 (life on

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						pollution, or other issues would make the text more impactful and informative. Additionally, the text categorizes countries as facing "major challenges" or "significant challenges," but it doesn't provide a basis for comparison or explain the criteria for these classifications. A more detailed analysis of why some countries are facing major challenges while others only have significant challenges would add depth to the discussion. Moreover, the text references SDGs 14 and 15, but it doesn't explain what these goals entail. For readers who might not be familiar with the United Nations Sustainable Development Goals, it would be helpful to provide a brief description of these goals and why they are relevant to marine and terrestrial ecosystems.		land): forest degradation is expanding, some polluting sectors are undergoing rapid growth, such as coastal mass tourism or land and maritime transport {1.2; 4.1}. Regarding marine ecosystems, unsustainable fishing, warmer temperatures, acidification, and water pollution reduce marine productivity, affect species distribution and trigger local extinction {1.2}. So as for SDG 14...". The meaning of SDG14 and SDG15 has been explicated.
123	6	10	6	22	substance	An obvious and serious effect of climate change in the Mediterranean is forest fires, which also have many consequences on what is addressed in the report. There is only a small reference and I think they deserve more attention. Ex Pg 8	Accepted	Reference to wildfires have been added at the beginning of the paragraph A.2.5: "Biodiversity loss, deforestation, wildfires and land use changes, as well as pollution, are trends widely reported that are severely undermining Mediterranean ecosystems {1.2; 4.1}".
124	6	11	6	13	substance	The FOD must include underwater radiated noise under its pollution definition, for further information see comments on FOD.	Noted	Reference to underwater noise has been added in paragraph A.2.5: "Regarding marine ecosystems, unsustainable fishing, warmer temperatures, acidification and water pollution, including underwater noise, reduce marine productivity, affect species distribution and trigger local extinction {1.2}." with a link to Chapter 1 of the report (citing Moretti and Affatati, 2023).
125	6	11	6	13	substance	Evoquer aussi les incendies de forêts qui représentent des facteurs de perturbation majeurs pour les différentes composantes des écosystèmes terrestres	Accepted	Reference to wildfires have been added at the beginning of the paragraph: "Biodiversity loss, deforestation, wildfires and land use changes, as well as pollution, are trends widely reported that are severely undermining Mediterranean ecosystems {1.2; 4.1}".
126	6	23	7	4	substance	no comment	Noted	No comment
127	6	27	6	27	substance	Please, use affected for threatened.	Accepted	Corrected as suggested in paragraph A.3.1.
128	6	27	7	4	substance	Even if mentioned later in other sections, I believe that the salinisation of coastal underground water is an issue presently missing but worth to mention in section 1.3.1 dealing with water security.	Accepted	The beginning of the paragraph A.3.1. has been modified in order to detail the list of factors leading to water insecurity: "Water security in the Mediterranean is affected by a combination of factors, including climate change, densely concentrated population growth, pollution, saltwater intrusion, land use practices and unsustainable resource management, among others {1.2; 2.2.1}."
129	6	30	6	31	substance	I doubt for the high confidence concerning the precipitation decrease in future projections. This becomes more clear after 2050s and depends on the scenario or the global warming level. Furthermore, there is large model range and multimodel studies show most non-robust changes. See for example in Figure Atlas.24 of IPCC WG1 AR6 (Gutiérrez, et al., 2021). For DJF mean precipitation amounts the model projections show a tension for decrease depending on the scenario or the global warming	Accepted	The reviewer is correct that the negative trend in average precipitation has <i>high confidence</i> for global warming levels above 2°C only (see Ali et al. 2022 in AR6 IPCC, CCP4 on Mediterranean region). It is also true that a marginal increase is projected in winter at the northern boundary of the northern Mediterranean basin. We modified the text accordingly in paragraph A.3.1: "Future mean precipitation projections for the Mediterranean region foresee reductions by approximately 4% per 1°C global warming (<i>high confidence</i> for global warming

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						<p>level but there is low to medium confidence as the there is large model range spanning from negative to positive changes.</p> <p>However, it is very likely that precipitation will decrease in the Mediterranean in JJA under all climate scenarios except RCP2.6/SSP1-2.6 and for both mid- and end-century periods (Coppola et al., 2021; Atlas.8.5). So reduced JJA precipitation will occur with medium confidence for global warming levels below 2°C, and with high confidence for higher warming levels.</p> <p>You may also check the robustness of the precipitation projections from the interactive ATLAS IPCC tool (https://interactive-atlas.ipcc.ch).</p> <p>In the multimodel RCM study of Zittis et al. (2019) this is clear from their Figure 2 where the future annual precipitation changes are not robust and significant. This is also indicated by another recent RCM multimodel study for Greece where statistically robust results for precipitation changes are found only for the end-of-the-century period under RCP8.5 (Georgoulas et al., 2022).</p> <p>References</p> <p>Coppola, E. et al., 2021: Assessment of the European Climate Projections as Simulated by the Large EURO-CORDEX Regional and Global Climate Model Ensemble. <i>Journal of Geophysical Research: Atmospheres</i>, 126(4), e2019JD032356, doi:10.1029/2019jd032356.</p> <p>Georgoulas A. K., D. Akritidis, A. Kalisoras, J. Kapsomenakis, D. Melas, C. S. Zerefos, P. Zanis, Climate change projections for Greece in the 21st century from high-resolution EURO-CORDEX RCM simulations, <i>Atmospheric Research</i>, 271, 106049, https://doi.org/10.1016/j.atmosres.2022.106049, 2022.</p> <p>Gutiérrez, J.M., R.G. Jones, G.T. Narisma, L.M. Alves, M. Amjad, I.V. Gorodetskaya, M. Grose, N.A.B. Klutse, S. Krakovska, J. Li, D. Martínez-Castro, L.O. Mearns, S.H. Mernild, T. Ngo-Duc, B. van den Hurk, and J.-H. Yoon, 2021: Atlas. In <i>Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change</i> [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1927–2058, doi:10.1017/9781009157896.021.</p>		levels above 2°C with a marginal projected increase in winter at the northern boundary of the northern Mediterranean basin) {1.2; 2.2.1.1}. "

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130	6	30	6	31	substance	The text mentions "reductions ranging from 5 to 40%" in future precipitation projections. To enhance accuracy, it would be beneficial to specify the time frame over which these projections are being made, as well as the units for these percentage reductions.	Accepted	We did not specify the time frame which depends on the scenario, but the projected reduction associated with a given level of warming. The new sentence in paragraph A.3.1 is: "Future mean precipitation projections for the Mediterranean region foresee reductions by approximately 4% per 1°C global warming (<i>high confidence</i> for global warming levels above 2°C with a marginal projected increase in winter at the northern boundary of the northern Mediterranean basin) {1.2; 2.2.1.1}."
131	6	30	6	31	substance	It is state that "Future precipitation projections for the Mediterranean region foresee reductions ranging from 5 to 40%, depending on the emission scenario (high confidence)". It would be advisable to include a further / more in detail explanation with respect to the assessed scenarios (e.g. RCP 8.5).	Accepted	We modified the text in paragraph A.3.1 to make clear that the negative trend in average precipitation has <i>high confidence</i> for global warming levels above 2°C only, with, however, a marginal projected increase in winter at the northern boundary of the northern Mediterranean basin (see Ali et al. 2022 in AR6 IPCC, CCP4 on Mediterranean region).
132	6	32		33	editorial	using the word (increase rather than double) because drought is still exists.	Accepted	Corrected as suggested in paragraph A.3.1.
133	7	4	7	27	substance	Exhaustive	Noted	Not specific comment
134	7	13	7	14	substance	Add desertification as another factor. I.e., Agricultural land can be lost due to coastal water, soil salinisation and desertification. See section 2.3.2 in First Order Draft (FOD).	Accepted	Corrected as suggested in paragraph A.3.2: "Agricultural land can be lost due to coastal water, soil salinisation and desertification {2.3.2}."
135	7	15	7	17	substance	The consequences of climate change on fishing and aquaculture are under study, although a good part of the studies seem to point towards a displacement of the species.	Accepted	We added in paragraph A.3.2 that climate change can also modify species distribution as mentioned in {1.2}.
136	7	27	7	30	substance	Add: The main direct impact of climate change on energy is mediated through water scarcity (see Section {2.2.3} / see FOD {2.4.1.1} -end of line 32. before the sentence...Nuclear...	Accepted	The following sentence was added in paragraph A.3.3: "Hydropower and thermo-electric production, including nuclear, is expected to decline, due to decreased streamflow and increased water temperature, leading to up to 10 to 15% decrease in thermopower by 2050 in the highest emission scenario (<i>high confidence</i>) {1.2; 2.4.1.1}."
137	7	34	7	36	substance	This statement raises doubts for me: "solar power, may be impeded by the impacts of climate change"	Accepted	We reformulated the sentence in paragraph A.3.3: "Climate change through increased temperatures affect marginally solar energy production (less than 2% decrease for global warming levels up to 3°C) (<i>low confidence</i>) {1.2}. Regarding wind energy, the projected wind speed decline affects wind energy production (up to 8% decrease for global warming levels up to 3°C) (<i>low confidence</i>) {1.2}."
138	7	37	8	2	substance	The text begins with a strong statement about climate change driving the dynamics of dryland ecosystems, but it could benefit from specifying which aspects of these dynamics are affected. What exactly is meant by "dynamics"? Providing concrete examples could make the impact clearer. Also the list of ecosystem services impacted is comprehensive, but it might be helpful to organize and prioritize them based on their	Accepted	The formulation of the sentence has been modified in paragraph A.3.4 in order to make it clearer: "Climate change has major impacts on dryland ecosystems in the Mediterranean region, which include vegetation productivity, biodiversity, and stability and the northward expansion of semi-arid regions.". Regarding prioritization, there is no literature that could support a prioritization of the impacts in the report.

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						significance or the extent of impact. This can help readers grasp which services are most vulnerable and require urgent attention.		
139	8	3	8	9	editorial	verification of concordance with references {2.3.1.4, 2.4.1.4} and {4.1}	Accepted	The correct section is now cited in paragraph A.3.5 {{4.1}}
140	8	3	8	9	substance	In a structural report like this, I find a section on an issue like COVID-19 shocking.	Accepted	We removed the reference to the specific example of COVID, so the paragraph A.3.5 is now: "Conjunctural drivers of change, such as recent conflicts and pandemics have suddenly negatively impacted the WEFE nexus and its hierarchical constituents as well as the SDGs indicators {4.1}."
141	8	10	9	40	substance	There is some similarities in the titles and should be managed	Noted	We didn't find a better way to discuss the cascading process from each WEFE pillar
142	8	10	11	12	substance	No comment With as indicated the revision of Figure SPM1	Noted	No comment
143	8	16	8	16	substance	for "Maintaining the health of ecosystems" I'd suggest using an alternative word instead of Health, e.g., sustaining the ecosystem	Accepted	Corrected as suggested in the introductory paragraph of Section B of the SPM.
144	8	16	8	20	substance	We recommend to make a specific reference to the "source-to-sea methodology" as a promising planning and implementation methodology to address the linkages between land, water, delta, estuary, coast, nearshore and ocean ecosystems leading to holistic natural resources management and economic development. Source-to-sea usefully complements ICZM linking upstream to downstream.	Noted	Reference to the source-to-sea approach has been made in Chapter 1 in footnote 4 ("In the context of the Mediterranean Basin, the Integrated Water Resources Management (IWRM), may include integrated coastal zone management (ICZM) and source-to-sea approach to address water resources management as a comprehensive network linking land, water, delta, estuary, coast, nearshore and ocean ecosystem holistically supported by specific mechanisms and measures such as the sustainable blue economy (Michels-Brito et al., 2023).") but since no literature seems to exist on the specific application of such concepts in the Mediterranean context, no literature-based key message can be conveyed in the SPM.
145	8	21	8	32	substance	the use of more desalination water for fighting against water scarcity, also impact on energy availability	Noted	Addressed in section B.5 of the SPM which addresses solutions and specifically in Figures SPM3 and SPM4.
146	8	26		28	substance	Increasing water availability for irrigation also lead to (lowering water table due to overexploitation which lead to increase of energy required to water pumping).	Noted	Addressed in section B.5 of the SPM which addresses solutions and specifically in Figures SPM3 and SPM4.
147	8	30			editorial	I consider important to highlight with bold character some parts of the text with those messages more impactful like «actions seeking to increase water availability for irrigation using treated wastewater contribute...»	Noted	The sentences highlighted in bold are broader statement which are further explained in the paragraph. The sentence that the reviewer suggest putting in bold is not considered as a broader statement.
148	8	31	8	2	substance	Integrate at the end of Line 2 page8 the 2 sentences (from line 41 page 8): "a cascade of feed-back effects among increased aridity, more frequent torrential rainfalls and fires, and land use....until (Peñuelas et al., 2018)". -line 44 page 8-	Accepted	The fact that there are multi-loops and feedbacks is now addressed in the introduction of the "cascading impact" section B of the SPM and not specifically for each pillar. The feedback loops are now shown in the revised Figure SPM2.

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149	8	32	8	32	substance	Add before the end of the paragraph 2.1.1: "Using treated wastewater it is possible to reach significant advantages in terms of electrical electricity reduction and Green House Gases (GHGs) emissions."	Noted	Addressed in section B.5 of the SPM which addresses solutions and specifically in Figures SPM3 and SPM4.
150	8	37	8	42	substance	Briefly touch upon reforestation, sustainable agriculture, or other practices that can help mitigate these impacts.	Noted	Addressed in section B.5 of the SPM which addresses solutions and specifically in Figures SPM3 and SPM4.
151	8	37	8	41	editorial	The meaning is not clear. Kindly rephrase.	Accepted	We agree that the formulation was unclear. It has been revised as follows in paragraph B.1.2: " The projected declines in streamflow and increases in water temperature may lead to a strong decline in hydropower and thermoelectric power usable capacity in the Mediterranean (2.5– 7.0% for hydropower in 2050s and 10–15% for thermoelectric power) (high confidence). The reduction of CO2 emissions from the potential loss of thermoelectric production from nuclear (low-CO2 emissions) or fossil fuel (large CO2 emissions) depends on the technologies {2.2.2; 2.4.1.1}."
152	8	40	8	42	substance	We recommend to expand the "water-food-energy" nexus concept to "water-energy-food and ecosystem" nexus given the strong interlinks between the four sectors (i.e., trade-offs and risks to biodiversity when expanding capacity for solar, wind and biofuels that cover more surface area).	Noted	Section B.1 addressed the cascading effect from water pillar change to the other WEFE components. The impact on the ecosystems is addressed in B.1.3. The point raised by the referee is explicitly addressed in B.3.1.
153	8				substance	I do not see the messages of the article: « There is also a strong biophysical correlation between water, food and ecosystem pillars in the Mediterranean, while little evidence is found for the energy pillar globally. In general, any deterioration of one of the correlated pillars, due to the impacts of climatic and nonclimatic drivers of change, amplifies the degradation of the others in a cascading process. »	Not applicable	No longer included
154	9	1	9	7	substance	The text suggests that the effects induced by water changes will lead to worsening ecological conditions for various components of the ecosystem. However, it might be beneficial to further elaborate on the specific causal relationships between water changes and these ecological impacts. How exactly do changes in the hydrological cycle and water quality affect aquatic biota, riparian plant communities, and waterbird populations?	Accepted	The sentence has been modified as follows in paragraph B.1.3: "These changes cause a loss of habitat for the aquatic biota, the rich and dynamic riparian plant communities, waterbirds, and important migratory corridors and foraging hotspots."
155	9	13		15	substance	Increasing irrigation to boost crop productivity is needed but with wise management of water use through implementing the subject of (water consumption).	Noted	This comment is addressed in the sentence of paragraph B.2.1: "Increased irrigation, as the main driver for boosting crop productivity in the Mediterranean, can have a high cost in terms of water use and water pollution"
156	9	15	9	17	substance	We recommend to make a specific reference to the sustainable blue economy (SBE) as are powerful means to protect and transform Mediterranean marine and coastal areas and them as a resource for local inclusive, sustainable and resilient development.	Noted	Reference to the sustainable blue economy (SBE) has been made in Chapter 1 in footnote 4 ("In the context of the Mediterranean Basin, the Integrated Water Resources Management (IWRM), may include integrated coastal zone management (ICZM) and source-to-sea approach to address water resources

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								management as a comprehensive network linking land, water, delta, estuary, coast, nearshore and ocean ecosystem holistically supported by specific mechanisms and measures such as the sustainable blue economy (Michels-Brito et al., 2023).") but the focus of the report is on the nexus between water, energy and food security extending to the coasts of the Mediterranean Sea and does not address the details of marine environment, including ecosystems, and the impact of other factors on its services. Therefore, no key message can be conveyed on the SBE in the SPM.
157	9	21	9	23	substance	Add "Increase use of fertilisers". I.e. Industrialisation of agriculture leads to ecological deterioration, characterized by deforestation, amplified emissions of greenhouse gases, escalated energy consumption, and augmented water and fertilisers usage.	Accepted	Corrected as suggested in paragraph B.2.1: "Industrialisation of agriculture leads to ecological deterioration, characterised by deforestation, amplified emissions of greenhouse gases, escalated energy consumption, and augmented water and fertilisers usage."
158	9	25	9	25	editorial	I miss also a mention to monocropping as a result of intensification and a cause of biodiversity loss and food insecurity	Accepted	Corrected as suggested in paragraph B.2.1: "The implementation of intensification techniques frequently results in agricultural land abandonment and a shift towards the cultivation of annual crops and monocultures, thereby affecting ecological sustainability and posing potential threats to biodiversity and agrobiodiversity. "
159	9	30	9	39	substance	The text in question touches upon the prevailing trend of escalated consumption of animal-derived products, attributing this phenomenon to the combined factors of population expansion and evolving lifestyles. The assertion that such shifts have led to an observable surge in greenhouse gas emissions, along with consequential disturbances in local and regional nitrogen cycles, is widely acknowledged within the scientific community. While it's acknowledged that the vitality of ecosystems is undeniably intertwined with the intricate dynamics of nitrogen cycling, a more comprehensive examination of the multifaceted disruptions engendered could lend greater depth to the discourse. Such an exploration might encompass a broader consideration of the far-reaching repercussions and intricacies that underlie these disruptions. The potential ramifications on water resources and the elemental balance of ecosystems deserve a more detailed analysis that considers both direct and indirect influences. The correlation drawn between energy demands and the realm of sustenance, while inherently relevant, might benefit from a more elucidated discussion. As the need for sustenance inevitably translates into heightened energy requirements, a judicious evaluation of energy sources becomes imperative to circumvent the pitfalls associated with fossil fuel reliance. A more in-depth exploration could shed light on the	Noted	Such level of detail is not expected in the SPM, the details can be found in the chapter

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						intricate interplay between dietary choices and carbon emissions, extending beyond the confines of the Mediterranean dietary model.		
160	9	30	9	33	substance	The FOD must address also impacts of fisheries and aquaculture on climate change and ecosystems, see comments on FOD.	Noted	Impacts on fisheries are addressed in section A.2.1. This is the section on cascading impacts linked to drivers of change
161	9	33	9	34	substance	"Addressing this challenge by increasing production leads to..." Is it production or "unsustainable production"? For instance increasing production from silvopasture systems could lead to reducing burning fuel biomass and in turn suppress mega fire outbreaks as stated in page 96 lines 6-8 and page 104 lines 4-51 in the FOD report.	Accepted	Corrected as suggested in paragraph B.2.2: "Addressing this challenge by increasing unsustainable production and not targeting consumption behaviour leads to the same cascading effects as further agricultural industrialisation, with impacts on the water and ecosystems elements {2.3.3}."
162	9	40	9	45	substance	We recommend to make a specific reference to the sustainable blue economy (SBE) as are powerful means to protect and transform Mediterranean marine and coastal areas and them as a resource for local inclusive, sustainable and resilient development.	Noted	Reference to the sustainable blue economy (SBE) has been made in Chapter 1 in footnote 4 ("In the context of the Mediterranean Basin, the Integrated Water Resources Management (IWRM), may include integrated coastal zone management (ICZM) and source-to-sea approach to address water resources management as a comprehensive network linking land, water, delta, estuary, coast, nearshore and ocean ecosystem holistically supported by specific mechanisms and measures such as the sustainable blue economy (Michels-Brito et al., 2023).") but the focus of the report is on the nexus between water, energy and food security extending to the coasts of the Mediterranean Sea and does not address the details of marine environment, including ecosystems, and the impact of other factors on its services. Therefore, no key message can be conveyed on the SBE in the SPM.
163	9	42	9	43	substance	Marine Spatial Planning is lately showing conflicts over the use of the seas	Noted	Reference to the sustainable blue economy (SBE), integrated coastal zone management (ICZM) source-to-sea approach have been made in Chapter 1 in footnote 4 ("In the context of the Mediterranean Basin, the Integrated Water Resources Management (IWRM), may include integrated coastal zone management (ICZM) and source-to-sea approach to address water resources management as a comprehensive network linking land, water, delta, estuary, coast, nearshore and ocean ecosystem holistically supported by specific mechanisms and measures such as the sustainable blue economy (Michels-Brito et al., 2023).") but the focus of the report is on the nexus between water, energy and food security extending to the coasts of the Mediterranean Sea and does not address the details of marine environment, including ecosystems, and the impact of other factors on its services. So no key message can be conveyed on the SBE in the SPM.
164	10	9	10	10	substance	It is state that "In Europe, water withdrawals for energy are similar to those for agricultural irrigation". It might be useful to add the term "in general" and / or some references.	Accepted	We modified the sentence as follows in paragraph B.3.2: "In Europe, water withdrawals for energy are on average similar to those for agricultural irrigation {2.4.2}.". The reference can be found in the section of the report mentioned within brackets.

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165	10	9	10	13	substance	It would be advisable to comment that when water is diverted from a river for turbinating and energy production, it returns to the river downstream of the energy plant.	Accepted	Water withdrawals are also used for cooling and a part of it is lost through evaporation. However, we agree that only a small fraction is consumed (6% for EU countries with however large disparities between countries), the remaining part being returned to the hydrological system (Magagna et al., 2019). The report and SPM have been revised to include this fact. In the SPM, sentences in paragraph B.3.2 have been revised as follows: "In Europe, water withdrawals for energy production are on average similar to those for agricultural irrigation {2.4.2}. In the MENA region, the share dedicated to irrigation is much higher (80%) which is, however, to be put in regards of the water scarcity in these countries. Only a small fraction is consumed (6% for EU countries with large disparities between countries), the remaining part being returned to the hydrological system. However, the energy sector remains an important part of withdrawals, negatively affecting the water availability and competing for water with food {2.4.2}."
166	10	19	10	22	substance	To clarify if the term "monoculture" is being used in the correct context, or if the term "monocropping" should be used instead. Monoculture refers to the planting of a field with a single crop during a season whereas monocropping refers to the continuous planting of the same crop one season following another. Having said so, fertiliser input is dependent on crop requirements/soil availability regardless of production method used.	Accepted	Corrected as suggested in paragraph B.3.3: "Energy is a crucial input (upstream) in food processing and fertiliser production. If no changes are introduced to agricultural practices, the potential reduction in fertilisers will influence agricultural production by introducing lower yields into current monocropping agricultural systems."
167	10	24	10	25	substance	"Potential increases in energy prices, due to the diversity of driving forces impacting on energy production". I don't quite understand this statement.	Accepted	Sentence has been simplified and rephrased in paragraph B.3.3: "Any increase in energy prices can also result in an increase in food prices, limiting food access to the poorest people."
168	10	27	11	4	substance	The text provides a foundational understanding of the impacts of climate change on ecosystems but refining certain points and acknowledging the complexity of these interactions would strengthen the overall discussion. Climate change's effects on ecosystems are intricate and multifaceted, requiring a nuanced and well-researched perspective. Here are some examples: While the text mentions that climate change can reduce ecosystem productivity and diversity, it's important to note that the impacts are not uniform across all ecosystems. Some ecosystems might actually thrive under certain climatic conditions. The relationship between climate change and ecosystem health is intricate and can vary based on factors like location, ecosystem type, and adaptation strategies. Similarly, the text suggests that climate change will invariably lead to a reduction in provisioning and regulating ecosystem services. However, the relationship between ecosystem health, climate change, and the services they provide is more nuanced. While some services might indeed decline, others might be	Accepted	Sentences have been added in paragraph B.4.1 to highlight the complexity of the climate change impacts and its possible positive effects: "Impact of climate change on ecosystems health can reduce the productivity of ecosystems and diversity at all levels, from intraspecific to landscape level. The degradation or depletion of ecosystems reduces the provisioning (water, food, biomass) and regulating ecosystem services (water quality, storm protection, carbon sequestration) provided by healthy ecosystems. In the case of water, climate and environmental changes combined with heightened concentrations of pollutants in aquatic environments could potentially result in a reduction in the quality of water, and a rise in sediment accumulation. Nevertheless, the effects are intricate and multifaceted, and not all ecosystems are affected equally. It is noteworthy that certain changes in climatic conditions may even lead to the enhancement of ecosystem services in specific instances {2.5.2}."

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						enhanced or undergo shifts due to changing conditions. Also while climate change can impact water quality and quantity, it's important to differentiate between different types of impacts. Changes in precipitation patterns can lead to both increased flooding and drought, which would have differing effects on water availability and sediment accumulation. The impact of climate change on water quality is also closely linked to land use practices and pollution sources.		
169	10	29	10	31	editorial	The verb "reduce" should read "reduces" (2 occurrences).	Accepted	Corrected as suggested in paragraph B.4.1
170	10	30	10	30	editorial	Maybe it's me, but i had to google the meaning of "intraspecific species" i would consider changing for "intraspecific competition " or "competition among members of the same specie".	Accepted	Corrected by deleting "species" in paragraph B.4.1
171	11	4	11	4	substance	wind energy, why?	Accepted	It is an error, the reference to "wind energy" has been removed
172	11	11	11	11	substance	it is important to add ecosystems to the figure as a fourth pillar.	Accepted	Added in the final version of the figures
173	11	12	11	12	substance	Why do technological changes such as renewable energies do not appear as "non-climatic drivers"?	Noted	The figures have been totally revised.
174	11	Fig SPM 1	11	Fig SPM1	editorial	Please correct WEF to become WEFE in all the figure after adding the forth pillar	Accepted	Added in the final version of the figures
175	11	Figure SPM 1	11	5	substance	Please, simplify the figure.	Accepted	We simplified the figure in the sense that only the cascading part has been kept, the link with management responses and data and modeling needs has been removed as they are in part addressed in the other figures of the SPM.
176	12	1	12	1	Editorial	I believe authors should avoid the word "maladaptation", and include mitigation options	Accepted	The title of section B.5 is now "Adaptation and mitigation solutions". However, the first sentence of the section still explains that if the solutions focus just on one factor of the WEFE nexus, they can bring to "maladaptation" because of the possible trade-offs with the other components.
177	12	1	12	1	editorial	Rethink the title as the section focuses more on adaptation rather than maladaptation	Accepted	The title of section B.5 is now "Adaptation and mitigation solutions". However, the first sentence of the section still explains that if the solutions focus just on one factor of the WEFE nexus, they can bring to "maladaptation" because of the possible trade-offs with the other components.
178	12	12	12	12	editorial	"treated" should be added before wastewater	Accepted	Corrected as suggested in paragraph B.5.1
179	12	17	12	17	substance	After ecosystems, add a sentence that although the technology is known, its implementation in poorer countries lacks financing besides appropriate policies.	Accepted	The following sentence has been added in paragraph B.5.5: "Indeed, technology implementation in southern countries still lacks adequate financing besides appropriate policies {3.4.4}."
180	12	17	12	17	substance	Reference also to 3.2.5	Accepted	Modified according to the new chapter outline (3.2.5 is now 3.2.3.2)

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181	12	19	12	23	substance	Although the importance of WEFE elements working synergistically for a sustainable food system is acknowledged, it must be pointed out that the production of bio-energy crops for renewable energy must not compromise food security by using agricultural land for such crops instead of food crops, particularly in the local scenario where land is very limited and water resources are short.	Accepted	The sentence has been modified.
182	12	23	12	26	substance	The sentence should also include regeneration of biodiversity as one aspect.	Accepted	The sentence in paragraph B.5.2 has been modified.
183	12	23	12	23	substance	when talking about smart water management or in another point, talk about the role of IWRM (integrated water resources management) on adaptation	Accepted	The sentence in paragraph B.5.2 has been modified.
184	12	27	12	27	substance	We would like to propose to add "...promote zero waste" here, as "... food loss and promote zero waste and..." in line 27. Explanation: Zero waste aims to reduce waste generation, protect natural resources, promote sustainable consumption patterns and enhance food security. Promoting zero waste requires to implement policies and behaviours which contribute to all food system.	Accepted	The sentence in paragraph B.5.2 has been modified.
185	12	42	13	2	substance	Very debatable phrase	Accepted	"On the other side" has been deleted in the revised version as there is not an opposition between the previous sentence and this one. Besides that, we do not see why this sentence could be debatable.
186	12				substance	I think that a message on the NBS is also necessary. Otherwise, section 3.2.4 is not useful.	Accepted	In paragraph B.5.2, the sentence has been reformulated.
187	12				substance	A message on early warning systems and climate services is also necessary, otherwise section 3.2.3 is not useful.	Accepted	In paragraph B.5.2, the following sentences have been added "Early warning systems, climate services and risk management approaches have also shown a broad applicability across various sectors in the Mediterranean and would benefit from incorporating an integrated nexus approach. Decision support tools, online platforms, or other products co-developed with users can provide information and services to support their decision-making {3.2.3.1}."
188	12				substance	Section 3.4 seems also useless as there is no reference on it in SPM	Accepted	A separate paragraph B.5.5 has been added: "Adoption and implementation of adaptation and mitigation measures can be bracken by some financial, scientific, geographic and institutional challenges. The implementation of solutions that consider the nexus can be more cost-effective and cost-efficient compared to other solutions, however it requires considerable funds in the initial stages. Financing such approaches can be further hindered since WEFE programs have many and important socially oriented components that are typically of limited commercial value and potential (3.4.1). Many northern countries of the Mediterranean are more likely and more financially ready to support such

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								initiatives, whereas the southern and eastern countries of the Mediterranean could require international support and commitment in the forms of financial or scientific support to increase the adoption of the new approaches that will in the long-term lead in the sustainability of the entire Mediterranean (3.4.4)."
189	13	1	15	15	substance	Add a section discussing potential barriers (e.g., lack of funding, political challenges) and how they might be overcome.	Accepted	A separate paragraph B.5.5 has been added: "Adoption and implementation of adaptation and mitigation measures can be bracken by some financial, scientific, geographic and institutional challenges. The implementation of solutions that consider the nexus can be more cost-effective and cost-efficient compared to other solutions, however it requires considerable funds in the initial stages. Financing such approaches can be further hindered since WEFE programs have many and important socially oriented components that are typically of limited commercial value and potential (3.4.1). Many northern countries of the Mediterranean are more likely and more financially ready to support such initiatives, whereas the southern and eastern countries of the Mediterranean could require international support and commitment in the forms of financial or scientific support to increase the adoption of the new approaches that will in the long-term lead in the sustainability of the entire Mediterranean (3.4.4)."
190	14	0	14	0	substance	Once again, the underestimation of technological effects, in addition to being debatable, seems contradictory with what the table indicates.	Noted	We do not understand the comment. What is meant by "underestimation of technological effects"? What is debatable? And what contradicts the table?
191	14	Fig SPM 2	14	Fig SPM2	substance	non-conventional water resources and wastewater reuse will be of negative impact on energy (as an example: Ref. C.-Y. Chen, S.-W. Wang, H. Kim et al. (2021) Non-conventional water reuse in agriculture: A circular water economy. Water Research 199. https://doi.org/10.1016/j.watres.2021.117193	Accepted	Added in the review and the figure, as well as in the reference list of the chapter.
192	14	Fig. SPM 2			editorial	The various SDG columns have two columns each, with probably a different meaning that I do not understand and should be more clearly specified.	Accepted	We revised the figure to make clear (besides the legend) that the left column indicates "Positive impacts on WEFE nexus pillars" while the right column indicates "Risk or trade-off on WEFE nexus pillars".
193	14		14		editorial	In the key of the figure SPM2, it would be useful to clarify that there are also different levels of agreement/confidence in reference to risk or trade-offs.	Noted	Already addressed (see legend)
194	14				substance	Figure SPM2: This is a great figure but if decision makers apply all these measures, can we really fully achieve SDGs? It gives an impression that these are the only solutions and they are more than enough for the success	Accepted	In the new version of the figure, more measures are listed. In the caption of the figure, we make clear that these are not all the possible solutions, but they are the solutions implemented on the Mediterranean, reported in scientific literature, and assessed in the report.
195	15	3	15	25	substance	Mention the most important variables that were used to create the main indicators.	Noted	There is no room for this in the SPM. However, Chapter 4 has been revised and includes examples of these variables.
196	15	6	15	6	editorial	The confidence level style has to be updated.	Accepted	Square brackets have been replaced by parentheses.

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197	15	11		15	substance	The unwillingness of authorities to make certain types of required data available due to lack of completed data, must be reduced through encouraging the authors to use methods treating inadequate data and uncertainty before using them	Rejected	The referee's opinion/recommendation is not explicitly made in the literature that the MedECC has reviewed so it cannot be mentioned in the report and SPM.
198	15	11	15	11	editorial	shouldn't it be lack of complete and aggregated data?	Noted	No, the need is for data with a fine spatial and temporal granularity, not aggregated data.
199	15	12	15	12	editorial	Not only unwillingness to provide data from authorities, but also companies ?	Noted	In Chapter 4, Section {4.4} implicitly refers that companies are among stakeholders.
200	15	16	15	20	substance	The text discusses the development of monitoring tools, spatial indicators, and nexus indexes, but it could be strengthened by providing specific examples of these tools and indicators.	Noted	Relevant comment but not applicable for the SPM. Examples have been added in the chapter itself.
201	15	16	15	20	editorial	This section is missing appropriate reference(s) to the full report.	Accepted	Reference to section {4.3} of the report has been added in new paragraph C.1.2.
202	15	19	15	19	editorial	Clarify high heterogeneity of what?	Accepted	The heterogeneity refers to the energy-water-food interdependencies. The sentence has been modified as follows "... their high heterogeneity within countries and between countries,..." in new paragraph C.1.2.
203	15	22	15	22	editorial	ecosystem serviceS (not service)	Accepted	Corrected as suggested in new paragraph C.1.1.
204	15	29	15	30	substance	We suggest to include "development of novel Technologies for innovative solutions and roadmaps for the broad exploitation throughout the region	Accepted	The sentence has been reformulated as follows in paragraph C.2.1.: "To effectively utilise WEFE nexus approach for sustainable development, key principles must be followed including understanding the interconnections among resources within a system, developing novel technologies for innovative solutions and roadmaps for their broad exploitation throughout the region, facilitating social innovation and deliberative approaches, and ensuring coordination across sectors and stakeholders {4.2}."
205	15	31	15	35	editorial	Also PRIMA program has a specific program on WEFE	Accepted	PRIMA has been added in the report in the revised Chapter 5 and the SPM (Figure SPM5).
206	15	32	15	32	substance	Even though it is not mentioned in the FOD, it is relevant to acknowledge that the Interreg MED (now Interreg Euro-MED) and ENI CBC MED (now Interreg NEXT MED) programmes have also supported the development of several territorial cooperation projects tackling some items of the WEFE nexus. These projects support the development and testing from new governance models, capacity-building activities to innovative practices, while promoting strong collaborations among 4helix stakeholders and countries from the Mediterranean region.	Accepted	Added in the report in the revised Chapter 5 and the SPM (Figure SPM5).
207	15		15		substance	This part should highlight the need for effective measures with multiple benefits, such as reducing shipping speed. Reducing greenhouse gas emissions, atmospheric contaminants, underwater noise pollution, and	Rejected	Not supported by the peer-reviewed literature

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						the risk of collisions with large whales would address climate change, human health, and marine biodiversity in an effective manner.		
208	15				substance	section 3: I do not see any message on section 4.4. Managing Nexus Synergies and Trade-offs for sustainable resource use and management. If the section is useless, maybe it could be removed.	Accepted	In paragraph C.1.1, the reference to section {4.2} has been replaced by a reference to section {4.4}: " WEFE nexus approach offers an integrated planning, cross-sectoral cooperation, and decision- making framework to analyse the interactions between the WEFE sectors of the Mediterranean region and identify trade-offs and co-benefits that might be overlooked in single-sectoral approaches (high confidence) {4.42}." In addition, section {4.4} is now referred to in paragraph C.3.3, i.e. "The limited effective implementation of WEFE nexus approaches in the region is attributed to insufficient incentives.
209	15				substance	Section 3: I do not see anything on IWRM, you think that it is not important?	Accepted	At the end of paragraph C.2.3, the following sentence has been added: "A pioneer of the WEFE concept at policy level is the IWRM framework designed to improve water resources management {4.2.; 5.1.1.}"
210	15				substance	Section 3.2. I do not see any reference to section 5.2: not enough important to provide at least a key message?	Accepted	The following sentence giving a broad statement of section {5.2} has been added in paragraph C.2.1 of the SPM "Governance for WEFE Nexus requires strengthened connection and better management through coordination, integration, coherence, and collaboration among actors and their respective strategies and actions, rather than through creation of new institutions {5.2}."
211	16	0	16	0	substance	Figure: International integrated misses Kunming-Montreal Global Biodiversity Framework; on national level national biodiversity strategies and climate and energy plans must be included. In regards to sectoral EU policies, biodiversity policies such as Habitats and Birds Directives and pending Nature Restoration Law must be included as well as Marine Strategy Framework Directive.	Accepted	Included in revised Figure SPM5
212	16	1		8	substance	Involvement of stakeholders in the nexus approach is facing the lack of laws that permit such collaboration. Besides universities are very far from contribution to the socio-economy	Rejected	Not supported by the peer-reviewed literature
213	16	1	17	8	substance	Elaborate on the characteristics of effective WEFE nexus governance, possibly with examples from successful regional collaborations.	Noted	Examples of regional successful collaborations are provided in Chapter 5 but this level of detail with specific examples is not expected in the SPM
214	16	1	16	1	substance	Consider adding "Quadruple helix stakeholders (public administrations, academia, private sector, civil society)". The involvement of stakeholders from the quadruple helix in the development and implementation of nexus approaches is crucial to provide multiple perspectives, ensure political legitimacy and promote dialogue on the sustainability of the WEFE elements	Accepted	The sentence has been modified as follows in paragraph C.2.2.: "The involvement of stakeholders from the quadruple helix (public administrations, academia, private sector, civil society) in the development and implementation of nexus approaches is crucial to provide multiple perspectives, ensure political legitimacy and promote dialogue on the sustainability of the WEFE elements {4.2}."
215	16	1	16	8	substance	talking about the importance of transnational/international also mention role of transboundary I River basin authorities	Noted	We believe transnational collaboration includes the proposed modifications in paragraph C.2.2.

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216	16	5	16	8	editorial	This sentence does not fit very well in this paragraph.	Noted	As the role and impact of international trade on the WEFE nexus do not appear robust (depending on the country incomes,...), the sentence has been removed in the SPM but the concept is still addressed in Chapter 1.
217	16	5	16	5	substance	Virtual water is a shocking concept for me, which perhaps should be explained to the non-specialized reader	Not applicable	No longer included
218	16	5	16	6	substance	The concept of virtual water may not be so familiar and would deserve a quick specification, e.g. with "(water consumed to produce goods and services)".	Not applicable	No longer included
219	16	5	16	6	editorial	I suggest that "International trade of virtual water and agricultural products" would be clearer since I assume that this is the trade of virtual water which is meant here.	Not applicable	No longer included
220	16	5	16	8	substance	I wonder whether this statement is quite robust. According to me, it should probably be weighted since in their global analysis published in Jan. 2023, Zhong et al. (https://doi.org/10.1016/j.jclepro.2022.135740) report a differential effect between high and low income countries, with improved and degraded water scarcity, respectively, due to international trade of virtual water.	Not applicable	No longer included
221	16	6	16	8	substance	The intervention of trade in agricultural products for climate reasons is a complex and "dangerous" issue (especially for certain countries). I don't know if the ruling "controlling import of water dependent food products" is appropriate without a deeper analysis.	Not applicable	No longer included
222	16	9	16	40	editorial	The section appears to be quite dense and could benefit from better organization and structuring of the ideas. Clearly delineating each subsection and using headings for the main points would enhance readability. Moreover, the text mentions insufficient understanding of nexus trade-offs, but it doesn't go into detail about what these trade-offs might entail. Elaborating on specific examples of trade-offs and how they impact policy decision-making would provide a clearer picture of the challenges.	Accepted	We have reorganised the section, added some parts from B.5.5 that fit better here and highlight in bold the main message
223	16	25	16	25	substance	While we talk about limited effective implementation of nexus approaches, the recommendations included in the SPM are general. More concrete recommendations are needed to give decision makers a sort of road map for change.	Rejected	This is not the role of the MedECC. The MedECC provides policy relevant scientific information (including the assessment of solutions) but does not make policy prescriptive recommendations to maintain scientific neutrality.
224	16	25	16	29	substance	Political willingness should be included as one aspect of limited effective WEFE implementation.	Noted	We believe it is already included in the SPM in paragraph B.3.
225	16	25	16	31	substance	A reference should be made to integrated spatial approaches including the "Source to Sea approach" and "ICZM". The UfM has published and is	Noted	Reference to the source-to-sea approach has been made in Chapter 1 in footnote 4 ("In the context of the Mediterranean Basin, the Integrated Water Resources Management (IWRM), may include integrated coastal zone management (ICZM)

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						working on regional strategies and framework promoting integrated approaches to operationalize the WEFE nexus.		and source-to-sea approach to address water resources management as a comprehensive network linking land, water, delta, estuary, coast, nearshore and ocean ecosystem holistically supported by specific mechanisms and measures such as the sustainable blue economy (Michels-Brito et al., 2023).") but since no literature seems to exist on the specific application of such concepts in the Mediterranean context, no literature-based key message can be conveyed in the SPM.
226	16	29	16	31	substance	This statement should be more refined and specific and if possible, put in relation to the saved costs of a measure with nexus benefits.	Accepted	The sentence in paragraph C.3.2 is justified with references to Section 4.2 of the report. It is however also addressed in a new paragraph B.5.5: "Adoption and implementation of adaptation and mitigation measures can be bracken by some financial, scientific, geographic and institutional challenges. The implementation of solutions that consider the nexus can be more cost-effective and cost-efficient compared to other solutions, however it requires considerable funds in the initial stages. Financing such approaches can be further hindered since WEFE programs have many and important socially oriented components that are typically of limited commercial value and potential (3.4.1). Many northern countries of the Mediterranean are more likely and more financially ready to support such initiatives, whereas the southern and eastern countries of the Mediterranean could require international support and commitment in the forms of financial or scientific support to increase the adoption of the new approaches that will in the long-term lead to the sustainability of the entire Mediterranean (3.4.4). Indeed, technology implementation in southern countries still lacks adequate financing besides appropriate policies {3.4.4}." There is no room in the SPM to provide specific examples.
227	16	32	16	40	substance	Considering adding a reference to the science-policy interface. For instance, "An enhanced attention to science-policy interface in some countries represents an opportunity for WEFE integrated planning, management, and governance. {5.2}	Accepted	The following sentence has been added in paragraph C.3.2.: "Universities and research organisations who are knowledge generators and brokers could integrate nexus thinking and organise policy dialogue into their research agendas and curricula {5.2.3}."
228	16	35	16	37	substance	This statement must be applied in reverse, keeping in mind that we are in the midst of a climate and biodiversity crisis.	Accepted	The sentence has been modified as follows in paragraph C.3.3: "Approaches that integrate both environmental sustainability and considerations of local, regional to global governance and economic factors are more likely to succeed in achieving real-world applicability {4.2}."
229	16	36	16	36	editorial	proper consideration of global governance but also local and regional governance, particularly in the Mediterranean region.	Accepted	The sentence has been modified as follows in paragraph C.3.3: "Approaches that integrate both environmental sustainability and considerations of local, regional to global governance and economic factors are more likely to succeed in achieving real-world applicability {4.2}."
230	16	40	16	40	substance	A reference should be made to the private capital mobilization to finance WEFE action, including through innovative financing	Accepted	The sentence "Public-Private Partnerships is found effective to fund the WEFE nexus and improve capacity building and awareness of involved partners {5.3.3}. " has been added in paragraph C.3.4

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						mechanisms. The UfM is currently partnering with other stakeholders on innovative financing mechanisms in the Mediterranean.		
231	17	Figure	17	Figure	substance	The Marine Strategy Framework Directive (MSFD) should be listed under EU policies (figure SPM3)	Accepted	Included in revised Figure SPM5
232	17	Figure SPM 3			substance	Consider adding the 2nd UfM Ministerial Declaration on Environment and Climate Action 2021 and the UfM 2030 Greener Med Agenda in the Action Plans section, and Interreg Euro-MED and Interreg NEXT MED in the Integrated territorial development section.	Accepted	Included in revised Figure SPM5