



INCA RESEARCH ADVANCEMENTS

TO DEVELOP ACCOUNTS ON NEW ECOSYSTEM SERVICES

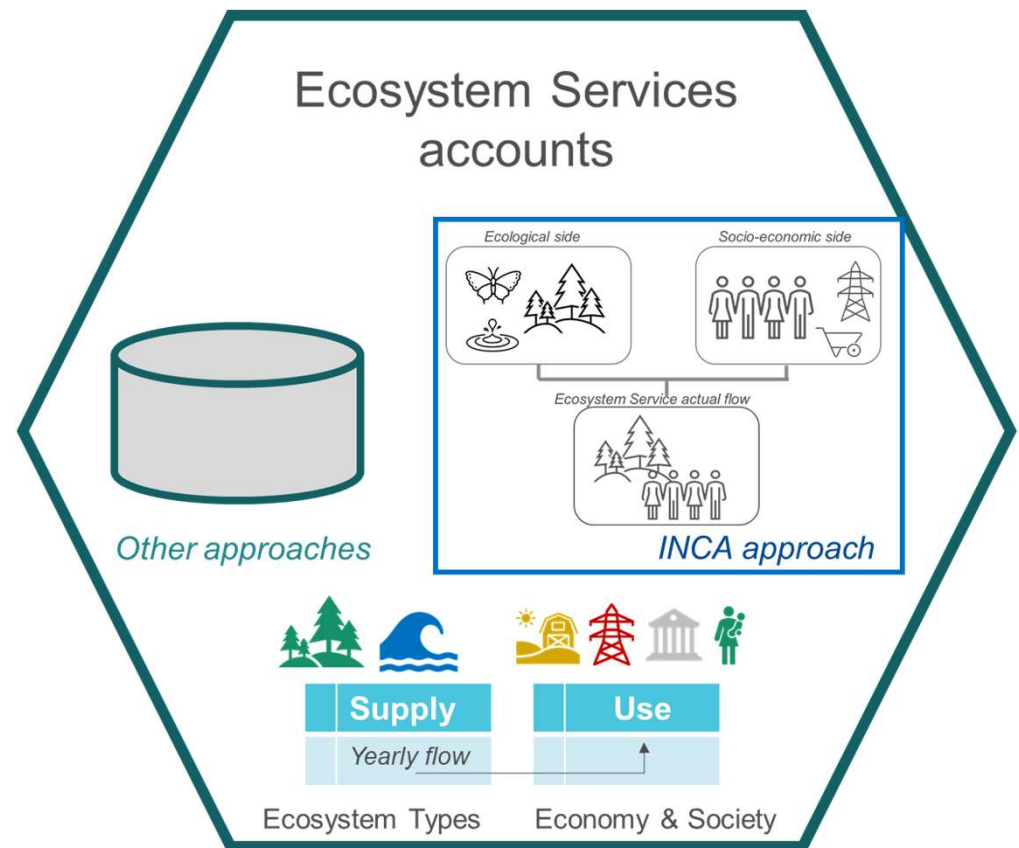
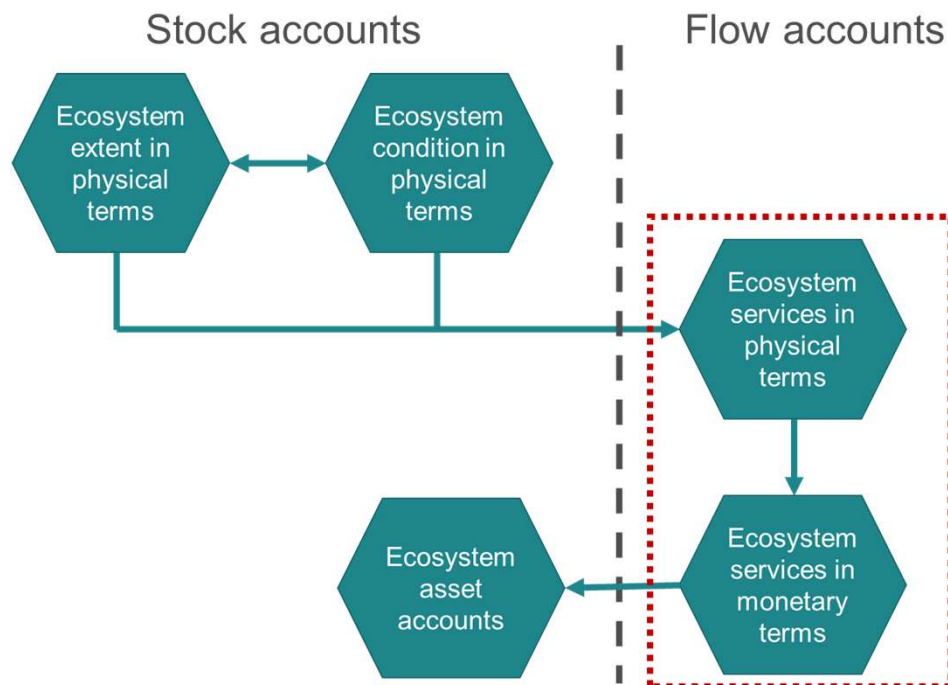
TO DEVELOP METRICS TO MEASURE NATURE-RELATED RISKS

Alessandra La Notte

External expert at the Joint Research Centre of the European Commission

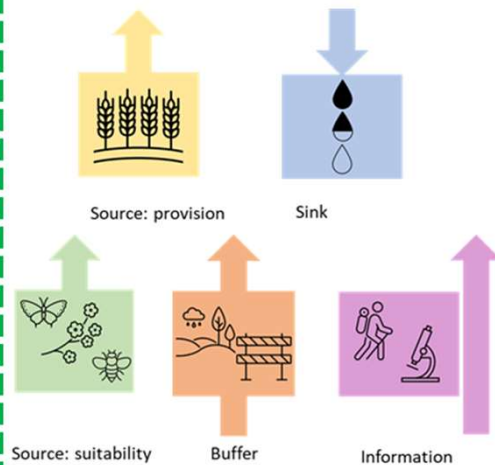
29th London Group meeting
Pretoria, 11-14 September 2024

FIRST OF ALL...WHAT DO WE MEAN BY INCA APPROACH?

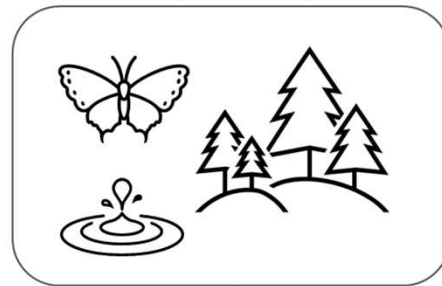


WHAT IS THE PECULIARITY OF THE INCA APPROACH

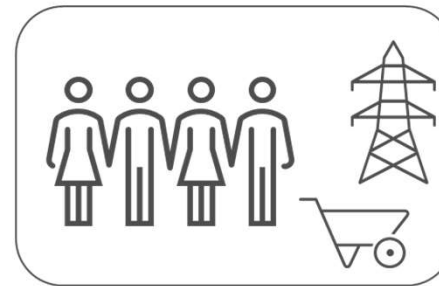
Typology of Ecosystem Services



Ecological supply



Socio-economic needs



Ecosystem Service use (match)

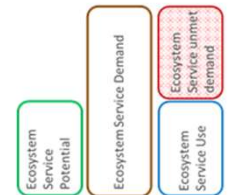


Ecosystem Service mis-match

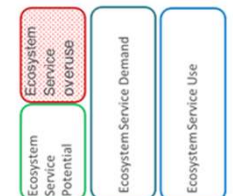


Typology of Mis-matches

Overuse



Unmet demand



Missed flow



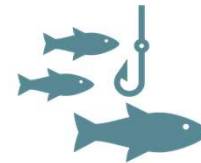
Accounting for marine ecosystem services in physical and monetary terms. The Mediterranean Sea case study¶

DEVELOP ACCOUNTS ON NEW ECOSYSTEM SERVICES

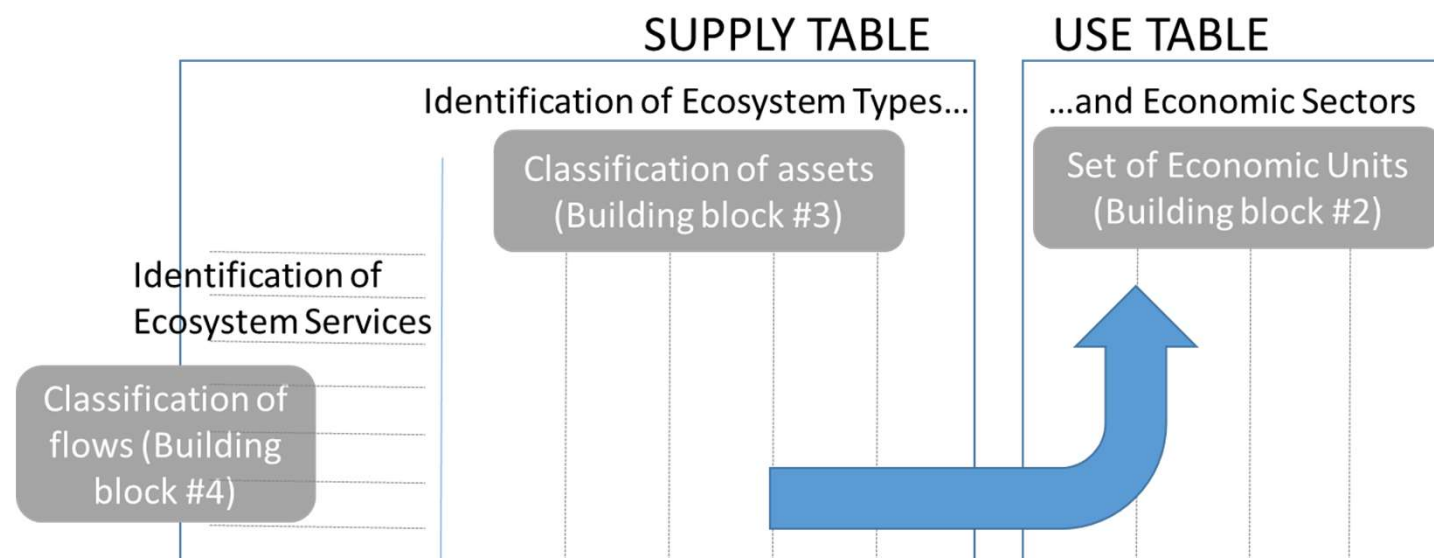
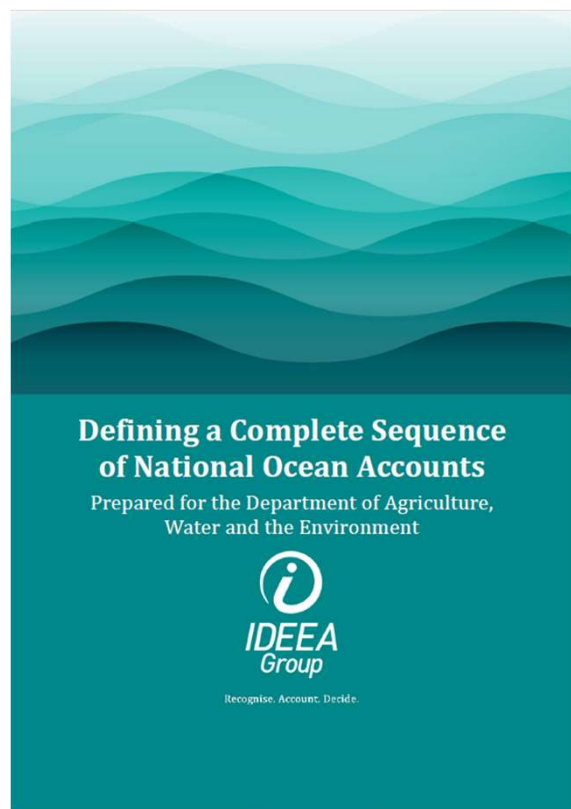
DEVELOP NEW ECOSYSTEM SERVICES

Marine Ecosystem Services:

- Fish Provision
- Raw biomass provision
- Blue carbon
- Nature-based recreation



STEP 1: ACCOUNTING SETTING

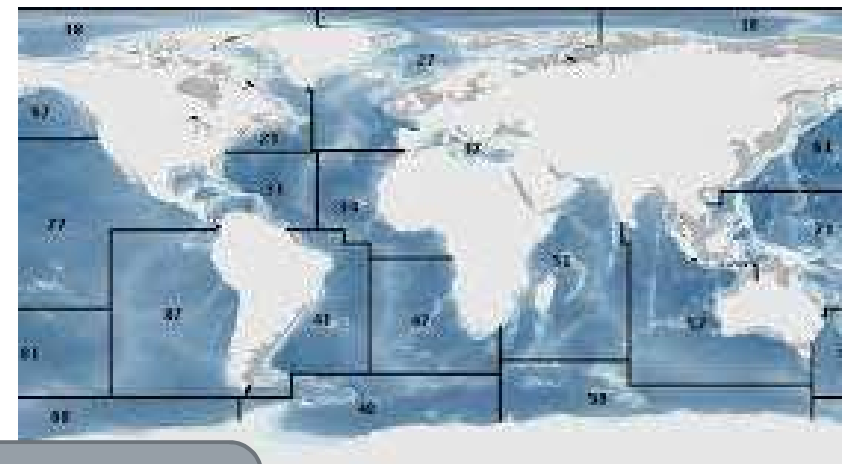


STEP TWO: SPATIAL SETTING

**Defining a Complete Sequence
of National Ocean Accounts**
Prepared for the Department of Agriculture,
Water and the Environment

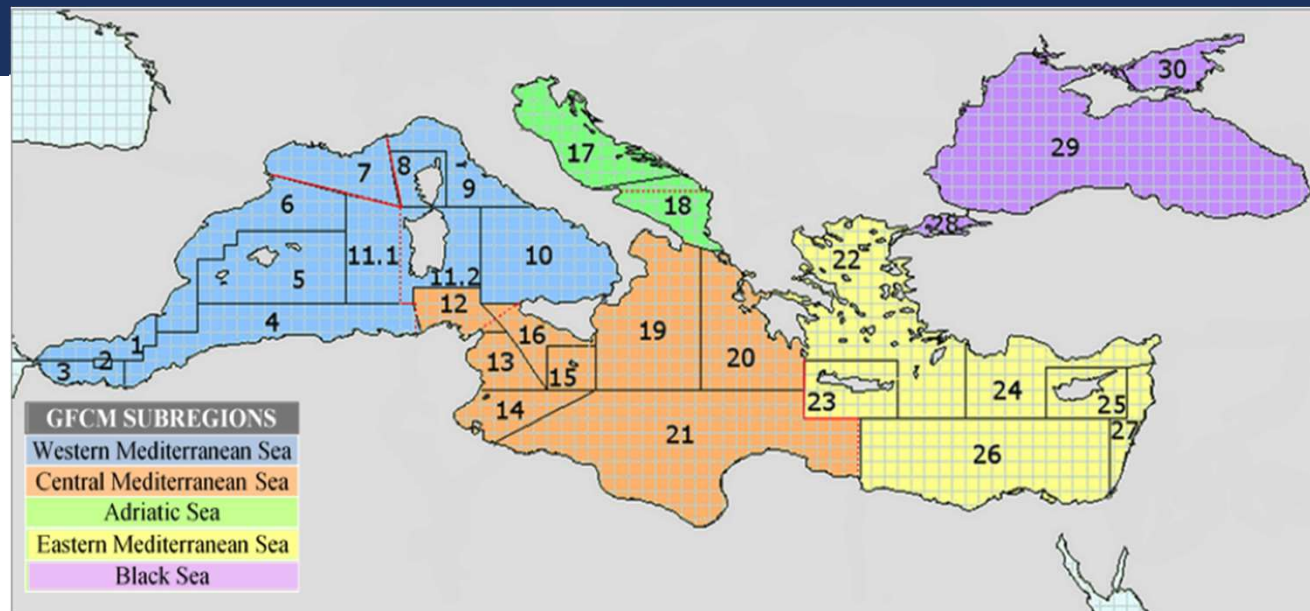


Recognition. Account. Decide.



Geographical scope
(Building block #1)

IN THIS PILOT APPLICATION:



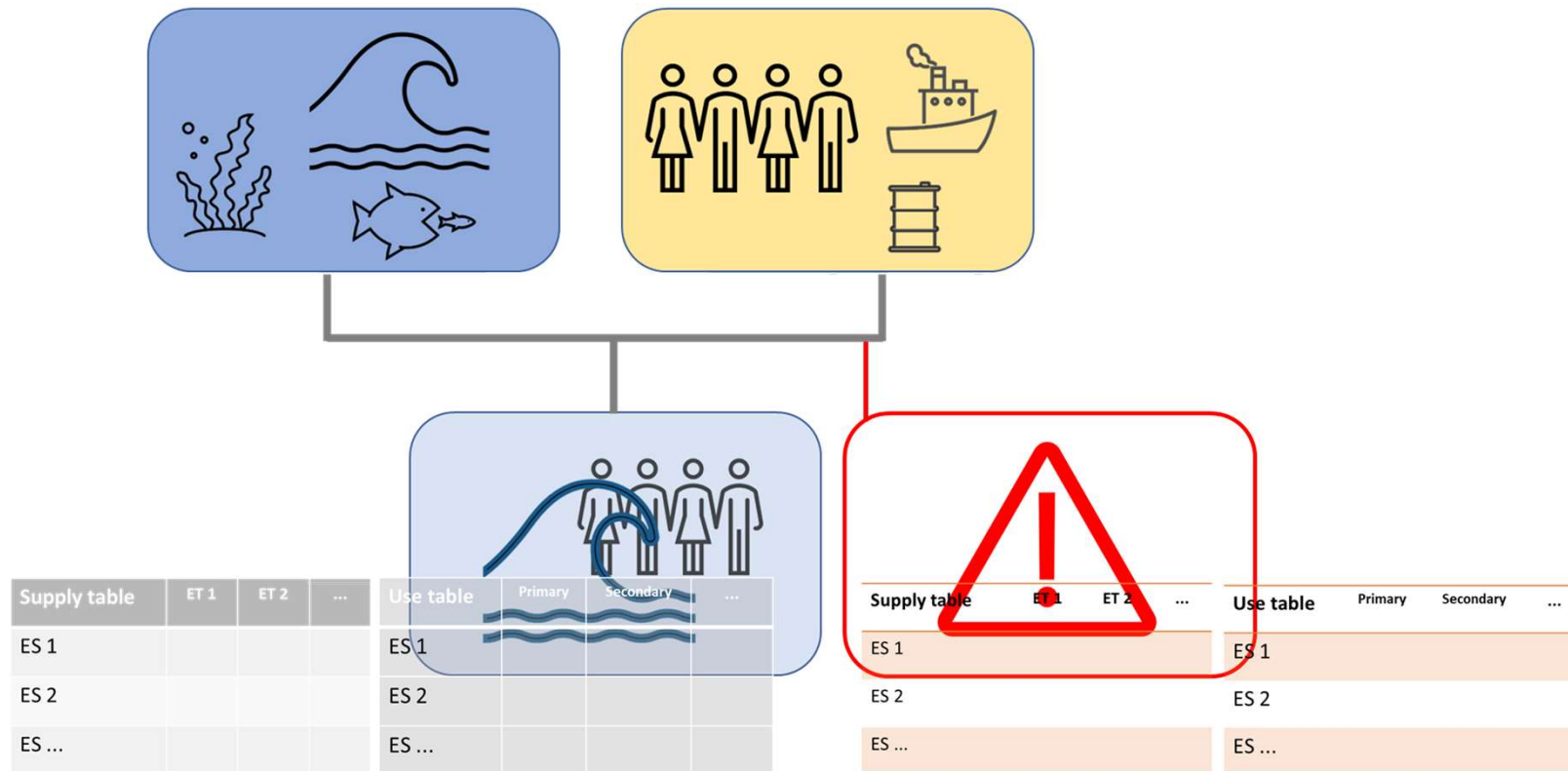
--- FAO Statistical Divisions ---- GFCM Geographical Subareas (GSAs)

GFCM GSAs

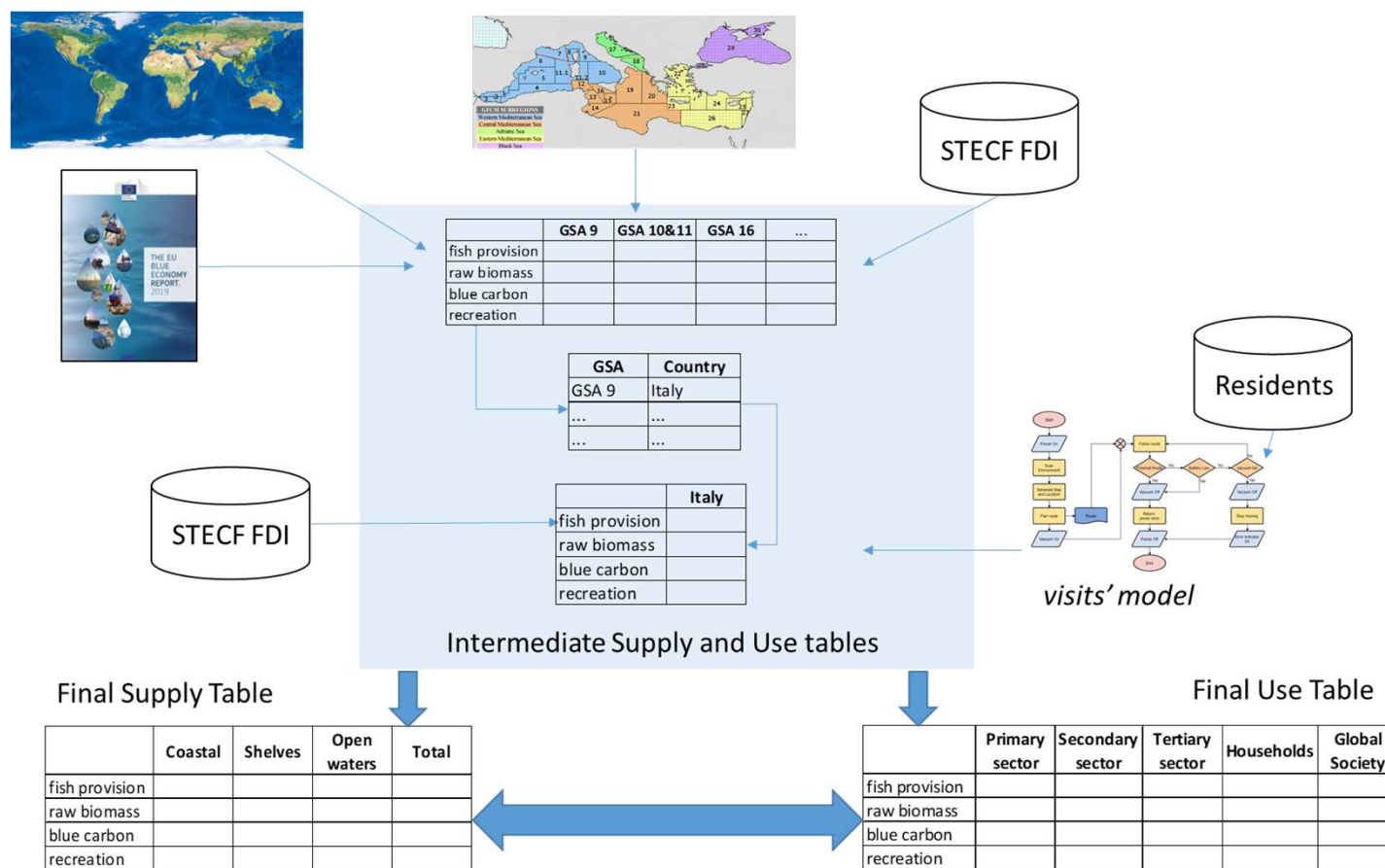
01 - Northern Alboran Sea	07 - Gulf of Lion	13 - Gulf of Hammamet	19 - Western Ionian Sea	25 - Cyprus
02 - Alboran Island	08 - Corsica	14 - Gulf of Gabes	20 - Eastern Ionian Sea	26 - South Levant Sea
03 - Southern Alboran Sea	09 - Ligurian Sea and Northern Tyrrhenian Sea	15 - Malta	21 - Southern Ionian Sea	27 - Eastern Levant Sea
04 - Algeria	10 - South and Central Tyrrhenian Sea	16 - Southern Sicily	22 - Aegean Sea	28 - Marmara Sea
05 - Balearic Islands	11.1 - Sardinia (west) 11.2 - Sardinia (east)	17 - Northern Adriatic Sea	23 - Crete	29 - Black Sea
06 - Northern Spain	12 - Northern Tunisia	18 - Southern Adriatic Sea	24 - North Levant Sea	30 - Azov Sea

General Fisheries Commission for the Mediterranean - GFCM

STEP THREE: SUSTAINABILITY MEASUREMENT



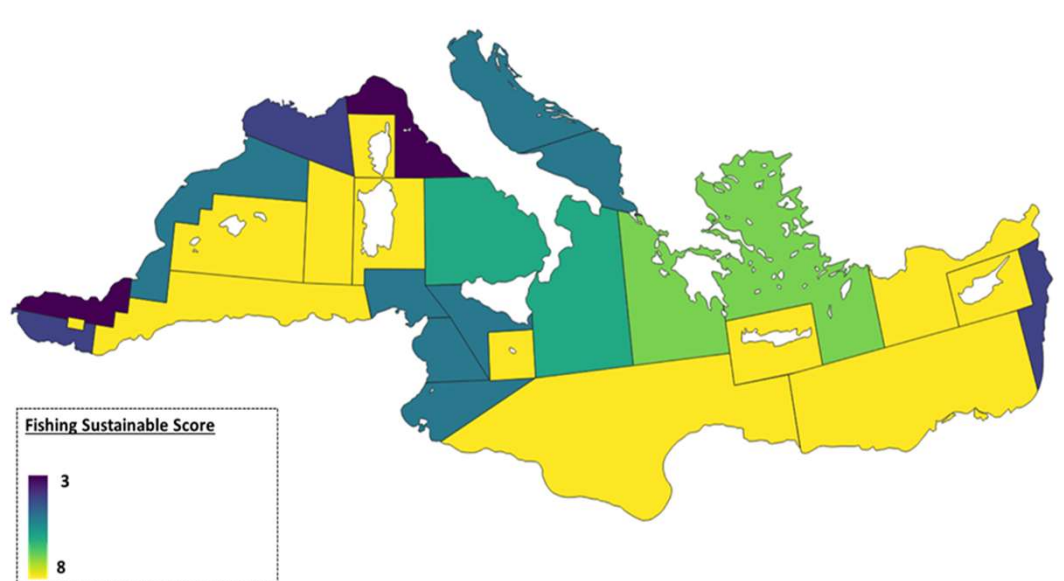
THE CASE STUDY ON THE MEDITERRANEAN SEA



MISMATCHES CAUSED BY OVERUSE

by fish species:

European Anchovy (ANE), the Atlantic Bluefin Tuna (BFT), the Red Mullet (MUT), the European Pilchard (PIL), the Common Pandora (PAC), the Blackspot Seabream (SBR) and the Striped Seabream (SSB)



STATUS* SCORE & RISK LEVEL

Fishing Sustainable Score Range	Risk level	
From -4 to -1	Critical risk	
0	Not applicable due to lack of data	
From 1-to 3	High risk	
From 4-to 5	Intermediate risk	
From 6-to 7	Low risk	
8	Riskless	

*fishing mortality + stock abundance

MISMATCHES CAUSED BY MISSED FLOWS

- Seagrass- presence → Dives
- Turtles and marine mammals- density → whale watching



Value attributed to Nature-Based daily recreation	
high	€43 per visit
medium	€15 per visit
low	€ 8per visit

OUTCOMES

	Ecosystem Types			
Ecosystem Services				
	Coastal	Shelves	Open waters	Total
Provisioning services				
<i>tonne</i>				
Fish provision	3,823	12,131	193,425	209,379
Raw Biomass provision SG	4,353			4,353
Regulation & maintenance services				
<i>tonne</i>				
Carbon storage (SG)	367			367
Carbon sequestration (SG + PPT)	5,035,549	9,787,481	26,380,232	41,203,262
Cultural services				
<i>nbr of visits</i>				
Nature-based daily recreation				21,260,864
	Ecosystem Types			
<i>Euro</i>	Coastal	Shelves	Open waters	Total
Provisioning services				
Fish provision	179,625,433	29,145,205	134,435,878	343,206,515
Raw Biomass provision SG	152,347			152,347
Regulating & maintenance services				
Carbon storage (SG)	11,916.67			11,916.67
Carbon sequestration (SG + PPT)	163,655,338	318,093,125	857,357,555	1,339,106,018
Cultural services				
Nature-based recreation	670,563,238		1,005,844,858	1,676,408,096
Total	1,014,008,273	347,238,330	1,997,638,291	3,358,884,893
Total per km2	2,204	302	2,245	1,344

	Macro-aggregation of economic sectors				
Ecosystem Services in physical terms					
	Primary sector	Secondary sector	Tertiary sector	Households	Global Society
Provisioning services					
<i>tonne</i>					
Fish provision	209,379				209,379
Raw biomass provision			4,353		4,353
Regulating & maintenance services					
<i>tonne</i>					
Blue carbon					41,203,629
Cultural services					
<i>nbr of visits</i>					
Nature-based tourism				21,260,864	21,260,864
Ecosystem Services in monetary terms					
	Primary sector	Secondary sector	Tertiary sector	Households	Global Society
<i>Euro</i>					
Provisioning services					
Fish provision	343,206,515				343,206,515
Raw biomass provision			152,347		152,347
Regulating & maintenance services					
Blue carbon					1,339,117,935
Cultural services					
Nature-based daily recreation				1,676,408,096	1,676,408,096
Total	343,206,515		152,347	1,676,408,096	1,339,117,935
					3,358,884,893

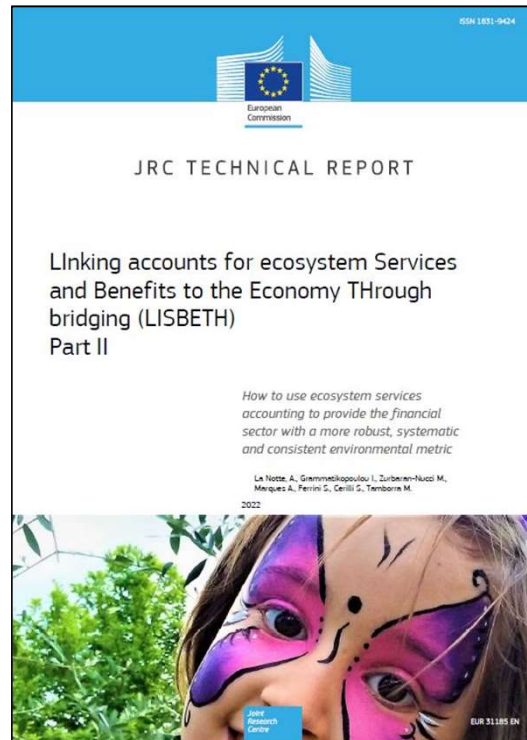
LESSONS LEARNED FROM THIS CASE STUDY

- The spatial setting is key: data collection at a significant level and THEN aggregated
- “Significance” may be related to both biophysical assessment and monetary valuation
- Need to have “intermediate” SUT before generating the official SUT
- Need to clarify the classification of Ecosystem Types: Ecosystems are mixed with Habitats
- Fisheries need to be necessarily aggregated by species: in our example we only counted seven
- Fisheries sustainable yield: are there datasets available? As “temporary solution” we had to estimate scores to generate an assessment

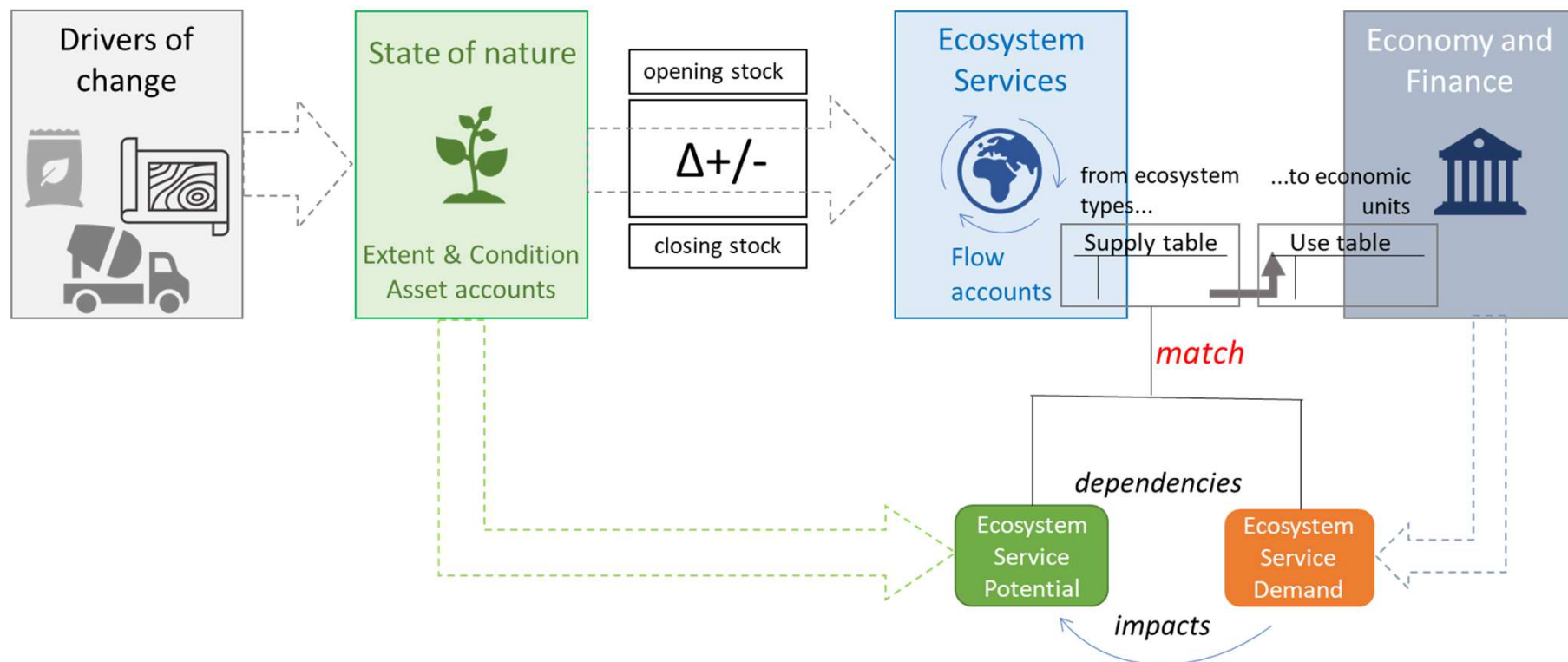
The assessment of nature-related risks: from ecosystem vulnerability to economic exposure and financial disclosures

DEVELOP ACCOUNTS ON NATURE-RELATED RISKS

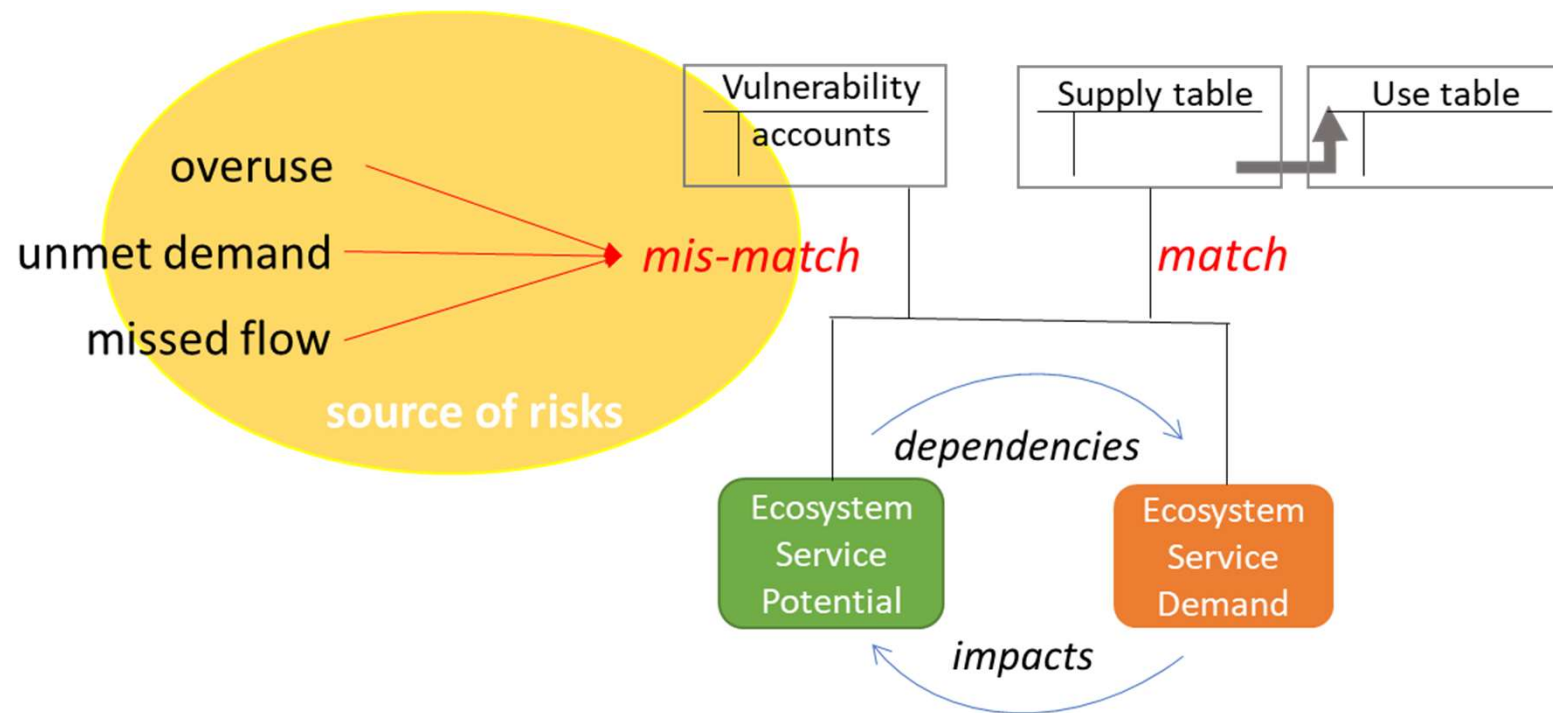
ROLE OF ECOSYSTEM SERVICES IN SUPPORTING ECONOMY & FINANCE



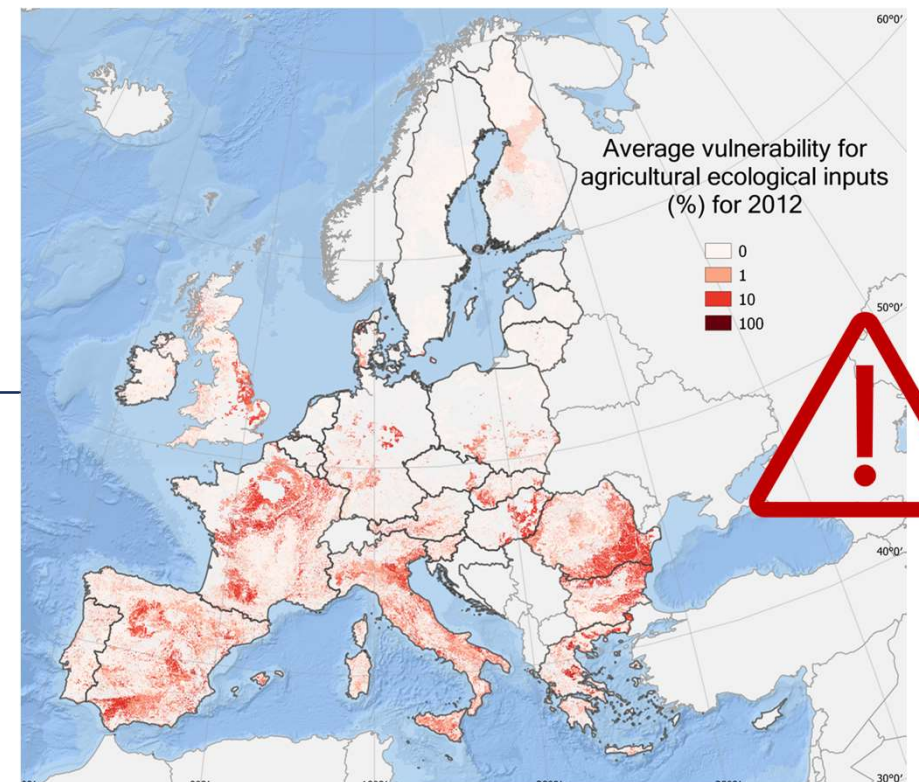
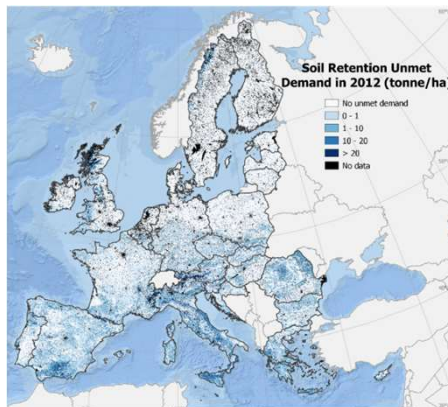
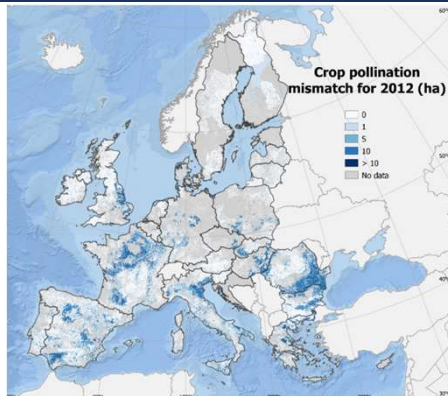
HOW INCA CAN SUPPORT FINANCIAL DISCLOSURE FRAMEWORKS (1/2)



HOW INCA CAN SUPPORT FINANCIAL DISCLOSURE FRAMEWORKS (2/2)

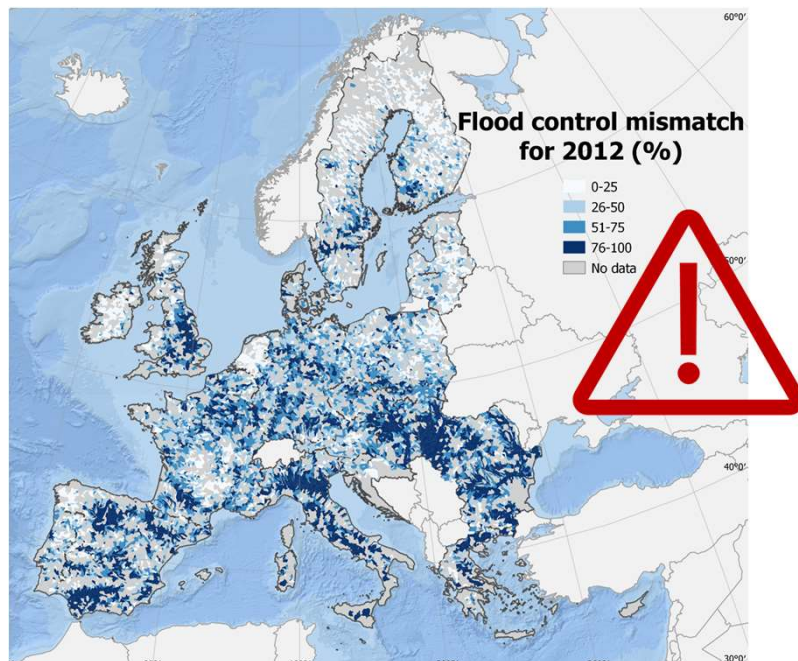


FROM ECOSYSTEM SERVICES VULNERABILITY ...(1/2)

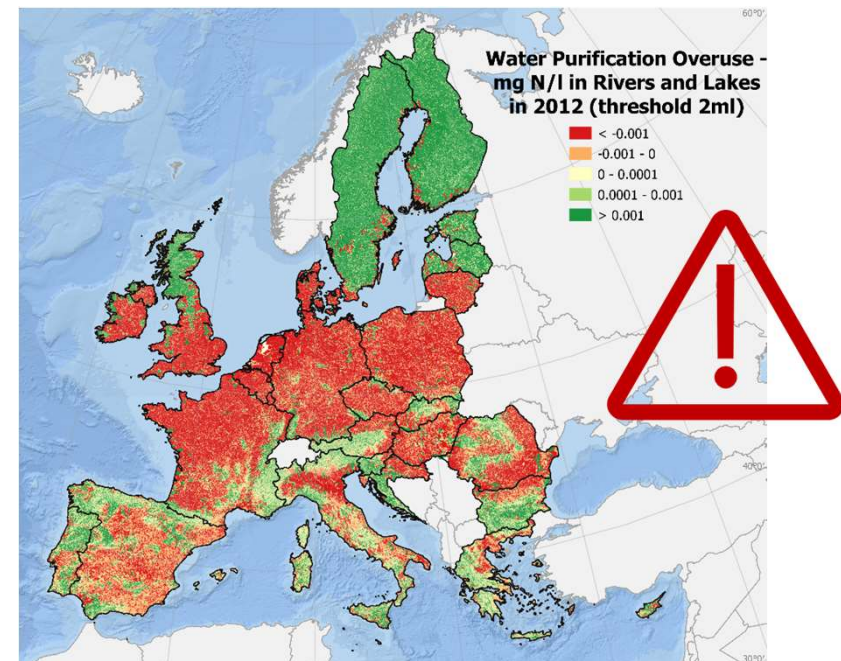


Vulnerability related to ecological inputs

FROM ECOSYSTEM SERVICES VULNERABILITY ...(2/2)



Vulnerability related to protection

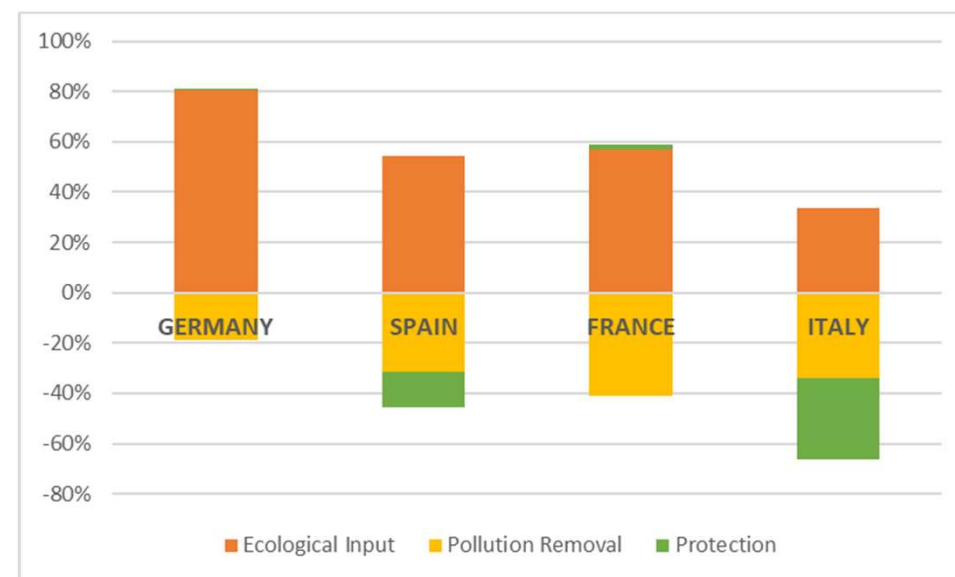


Vulnerability related to pollution removal

...TO ECONOMIC EXPOSURE

Ecosystem service vulnerability			
Countries	ecological input	protection	pollution removal
AT	-1,54	-0,03	0,25
BE	-1,63	-0,17	0,58
BG	0,93	0,06	0,23
CZ	-2,83	0,04	0,46
DE	-2,49	-0,03	0,58
DK	-2,14	0,03	0,46
EE	-2,93	-0,28	-0,52
EL	0,52	0,17	0,21
ES	-0,43	0,11	0,25
FI	-2,89	-0,15	-0,52
FR	-0,54	-0,02	0,39
HR	-2,32	-0,12	0,19
HU	-1,06	0,21	0,45
IE	-3,10	-0,34	0,27
IT	-0,23	0,23	0,23
LT	-3,21	-0,23	0,53
LU	-2,47	-0,18	0,40
LV	-3,31	-0,28	-0,10
NL	-3,20	-0,10	0,65
PL	-2,77	-0,13	0,65
PT	-1,19	-0,12	0,24
RO	0,50	0,20	0,38
SE	-3,00	-0,01	-0,52
SI	-2,54	-0,13	0,20
SK	-1,43	0,22	0,21

Importance of the agricultural sector		
Countries	GVA	MFA exports
AT	3.048	21.360
BE	1.681	35.785
BG	2.588	8.220
CZ	3.690	24.816
DE	19.934	93.503
DK	3.690	11.872
EE	358	5.951
EL	5.780	5.094
ES	22.620	38.788
FI	1.480	19.626
FR	31.314	81.943
HR	1.145	5.743
HU	3.664	15.525
IE	1.577	5.947
IT	29.270	36.465
LT	1.173	8.146
LU	119	1.636
LV	397	12.914
NL	10.433	66.935
PL	9.396	23.152
PT	2.155	10.586
RO	5.664	12.842
SE	3.275	26.549
SI	432	6.619
SK	921	7.755



THANK YOU FOR YOUR ATTENTION

