



**REPORT OF THE
STAKEHOLDER and
EXPERT WORKSHOP**

**Held in Brussels
11 March 2008**

Present:

Luc van Hoof, IMARES, Netherlands, Coordinator
 Loïc Antoine, Ifremer, France
 Maud Evrard, MB, France
 Veronique Lamblin, Futuribles, France
 Audun Iversen, FF, Norway
 Chantal Cahu, Ifremer, France
 John Pinnegar, CEFAS, UK

Workshop participants

<i>Name</i>	<i>Organisation</i>
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Adolfo Uriarte	AZTI
Alistair Lane	Executive Director European Aquaculture Society
Ana Olivert Amado	EP
Anthony J. Grehan	Department of Earth and Ocean Sciences, National University of Ireland,
Antoine DOSDAT	IFREMER
Benoit GUERIN	SWWRAC
Bettina Saier	Greenpeace International Representative
Caroline Gamblin	Comité National des Pêches Maritimes et des Elevages Marins
Christine Absil	Seas at Risk
Courtney Hough	FEAP
Dermot Hurst	Marine Institute
Evelina Sabatella	EAFE
Heather Squires	
Jan Willem Wijnstroom	EAA
John Godfrey	European Consumers Organisation (BEUC)
Karin Dubsy	Coast Watch Europe
Kjell Maroni	Norwegian Seafood Federation
Konstantinos Kalamantis	European Bureau for Conservation and Development
Marieke Reuver	AquaTT
Mario Lopes dos Santos	CEC DGRTD
Niall McDonough	Marine Institute
Philip McGinnity	Marine Institute

Tuesday 11th March

Opening and welcome and Tour de table. **Luc Van Hoof** (project coordinator) presented the state of play in the FEUFAR project, its process and the expected outcomes of the experts' workshop. **Véronique Lamblin** then presented the project methodology and the work ahead for the workshop.

Based on the drivers identified (see table below) in the prior two workshops and the hypothesis on future development of the individual drivers as developed by the project team, and the micro scenarios developed in the November Brussels' workshop, the participants split in groups and developed so called macro-scenarios: combinations of micro-scenarios relating to all parts of the system.

WORLD CONTEXT

- A1 climate change inc ocean productivity
- A2 International agreements (Johannesburg, Kyoto, maritime access, WTO)
- A3 world food security including demography

REGULATION

- B1 EU policies (CFP, maritime, marine strategy)
- B2 Governance policies (inc. Stakeholders cooperation)
- B3 management tools (inc. subsidies and relative stability, property rights)
- B4 national policies
- B5 Politics

SOCIAL DYNAMIC

- D1 Recreational fisheries
- D2 public perception of fisheries/aquaculture
- D3 activities in coastal areas (inc fishery act employment)
- D4 competing uses of seashore
- D5 Fishfolk attitude towards future
- D6 social capital (skills and expertise)

PRODUCTION

- F1 Marine "ingredients", by-products, bio prospecting
- F2 fleet structure size and technology (inc. selectivity, discards)
- F3 stocks development
- F4 fish feed development and availability
- F5 aquaculture hardware technologies
- F6 species diversification aquaculture
- F7 Genome manipulation breeding and selection
- F8 health of animals
- F9 seed availability (tuna and eel) ranching
- F10 health risk of seafood

SEAFOOD MARKETS & ECONOMICS

- C1 Product diversification
- C2 processing
- C3 distribution channel (value, quality, custody inc. Traceability)
- C4 consumer choices (prices, preferences, ethics, safety...)
- C5 world production of fish (finfish and shellfish) by region
- C6 EU trade within world trade in fish and fish products
- C7 costs and earnings for fisheries (inc risks)
- C8 costs and earnings of aquaculture (inc risks)

ECOSYSTEMS

- E1 pollutants and contaminants (inc. nutrients)
- E2 recruitment
- E3 invasive species
- E4 escapement
- E5 Impact of gears on habitat and organisms (including deep sea)

RESEARCH

- G1 sources and allocation of funding
- G2 Governance of european research (research organisation)
- G3 access to infrastructures (data bases)
- G4 Research training and management
- G5 information flows (including IPR)

In the figure below an overview of the identified micro-scenarios by sub-system.

Micro Scenarios						FEUFAR THE FUTURE OF EUROPEAN FISHERIES AND AQUACULTURE RESEARCH
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance		
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems			
C-EU Seafood Markets and economics	Responsible World	Innovative World	Shopping World	Expensive Fish	Ready Made Fish Meal	
D – Social Dynamics	Urban Ecology	Green Industrialization	Tourist Rather than Fisherman	Fishermen Know Better	We Need the Sea Production	
E- Ecosystems	Starts Bad Gets Better	Global Meltdown	Local Solutions for Global Problems	Supergreen		
F - Production	Free Market	EU Promotes Aquaculture	Science Solves the Problem (healthy and diversified)	Fisheries Bounce Back (natural food)	Fishing Feeds Poor People and Aquaculture	Big fish is a luxury
G-Research policies	Pop Idol (a change in priorities)	European drive to technological transfer (addressing the european paradox)	Funding Nemo	C'est la Vie (business as usual)	Public Money Rules Research (competition overtakes cooperation)	

The results of the individual scenarios is presented below as they are grouped under the heading of the suggested 5 scenarios. After the different scenarios were presented the project team was asked to try and group these differing views into a smaller set of scenarios. In the figure below the 4 different groups, in fact representing some 8 different scenarios is presented.

4 scenarios		FEUFAR THE FUTURE OF EUROPEAN FISHERIES AND AQUACULTURE RESEARCH
1.	Regionalisation	
	1. Power down from Central EU	
	2. Patchwork of solutions	
2.	Free market	
	1. Doom scenario	
	2. Responsible scenario	
3.	Green-environment	
	1. Management driven. Top down	
	2. Consumer driven	
	3. Local sustainability development, not as global issue	
4.	Different consumers, different fish → fish for health, labeled fish	

This summary stirred quite a debate. Issues that were raised were for example on the 4th, consumer focused scenario. For some this scenario was not clear and could be taken out, for others this scenario both covering the importance of consumers in for example product development and marketing as well as reflecting people as being stakeholders, with different

stakeholders holding different views on the future. In fact some consumers are environmentally conscious where others are more driven by price or ethical issues.

It was mentioned that Corporate responsibility is not so much driven by actual consumer preference but by perceived preferences utilized by corporations, who want to show a green image. In connection to this and looking at different segmented markets, these are niche markets – need to look at what transfers niche products into mainstream. Previously ‘organic’ was very unimportant but then a swing towards labelling organic produce, followed recently by a swing back when supermarkets are not willing to pay a premium for organic labelled products.

Labelling is a core issue. It was mentioned that at this time labelling practices do differ between the MS. For wild capture fisheries there is an ambition to have full range labeled NC certified; guarantee sustainable sourcing. However then still the issue is will all supermarkets accept one common certification? If so it would work, if not it would fail. e.g. in France 80% fish is sold through supermarkets.

Connected to this was a discussion on the health aspect of sea food, focusing on the one hand on the health attributes of sea food (Omega 3 fatty acids) and on the other hand on the need for sea produce to be pollutant free. This was even taken a step further when it was mentioned that one of the main issues to address in the near future is combating obesity. Hence fish consumption has to be linked to public health policy and it was suggested for the 4th scenario to be renamed ‘consumer health’, - government policy changes to promote well-being and see marine products as the main route towards improving health of population. Also to help reduce the health bill. Hence Mention human health driver rather than consumer driver. Fund integrated food marine research programme – contribute to the elimination of the European Paradox. Desire for a healthy population would be a driver for a range of activities in fisheries and aqua for traditional fish products, as a source of ingredients.

At the moment scenarios consider fisheries and aquaculture in isolation, need to think about wider activities in marine environment in at least one scenario. There are definite plans – unprecedented in their magnitude in the coastal zone that we need to consider. They will get priority over F & A, need to have scenario which takes into account changing face of coastal zone. Alternatively one could look at a major scenario to be “*Spatial planning*” which could include everything that is being planned, e.g. wind turbines and other activities in coastal zone, could be lumped under one vision of. In addition, in a try to make the most of what is at the moment available in the marine ecosystem it would be worth mentioning a possible move towards eating animals lower down the food-web as more efficient and not limited by food supply (e.g. herbivorous fish and bivalves). Production can be piggy backed on other activities at sea e.g. wave power schemes. Increase in primary productivity can be utilised.

On the names of the scenarios it was proposed to revert to the ‘classical’ sustainability view and name the scenarios People, Planet, Profit and add Politics as fourth.

For the regionalisation scenarios it was mentioned that although if decisions are taken at the regional level, which seems to be beneficial for people in regions, the wider voice of e.g. consumers is not really heard. I.e. regionalisation and local solutions are not always good. Regionalisation can come in two possible ways, (a) under framework of EU vision facilitated by EU, (b) ad-hoc fragmentation. Already move towards division of Europe into Baltic, NE Atlantic and Mediterranean – but within EU system – is happening already.

Issues that need to be clear in the scenarios are such developments as a scenario with or without shift in sea productivity (could be taken on as a external development or calamity), rise in fuel prices both affecting costs of production as costs of im- and export trough increase in transport prices, and a Globalisation effect in which e.g. Asia is the main focus.

The project team tasked itself to take up the presented scenarios and the remarks made to the suggested 4 scenarios and come up with a new set of scenarios (presented below). A tour de table was made in which all of the participants could provide guidance on how the group to take this process further. Main issues raised where:

- There is a need for Integrated ocean management multiple users of the seas and fisheries can not be considered in isolation. Will see more enforcement and control of fishing activities. More relationships between controlling agencies and fishermen.
- Scenarios can have lots of similar attributes, some suggestions which are never thought of as possible would could be excluded. It is necessary to try to extract main/consistent messages.
- It is suggested to include a "fish for health scenario" and supply of quality fish has to be objective of European research.
- Under each of the scenarios one could indicate what the effect of the scenario would be on People, Planet and Profit: 3 options get worse, stay same, get better.
- It is important not only to include top-down/legislative scenarios but also bottom up, involving fishermen as part of solution
- Concerning the future research agenda, next to identifying new research it is encouraged to utilise existing knowledge base/research base as well as new research. Have to use what we know now or we will be waiting forever.
- It can be a useful exercise to 'stress test' scenarios
- Concerning the relation between the different scenarios, there could be interaction between the scenarios as they are not per se mutually exclusive.

The FEUFAR project team took the presented scenarios, story lines and the above remarks and came up with the following set of scenarios:



5 Scenarios

- Delicatessen/Fish a healthy food
- Regionalisation/Local solutions for marine resources
- Doomsday/negative impact of European fisheries & aquaculture on world ecosystems
- Responsibility/an adult world
- 1984/totalitarian European regulation and control for maintaining European sea food

Below you will find per scenario first a slide presenting the combination of micro-scenarios and characteristics of the scenario after which you will find the scenarios as developed during the workshop by the participants.



FEUFAR Delicatessen (fish a healthy food)						
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance		
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems			
C-EU Seafood Markets and economics	Responsible World	Innovative World	Shopping World	Expensive Fish	Ready Made Fish Meal	
D - Social Dynamics	Urban Ecology	Green Industrialization	Tourist Rather than Fisherman	Fishermen Know Better	We Need the Sea Production	
E- Ecosystems	Starts Bad Gets Better	Global Meltdown	Local Solutions for Global Problems	Supergreen		
F - Production	Free Market	EU Promotes Aquaculture	Science Solves the Problem (healthy and diversified)	Fisheries Bounce Back (natural food)	Fishing Feeds Poor People and Aquaculture	Big fish is a luxury
G-Research policies	Pop Idol (a change in priorities)	European drive to technological transfer (addressing the european paradox)	Funding Nemo	C'est la Vie (business as usual)	Public Money Rules Research (competition overtakes cooperation)	

- FEUFAR Delicatessen (fish a healthy food) : new opportunities for E fisheries and aquaculture**
- E wants to feed its people with healthy and clean seafood (gain on health spendings)
 - development of new knowledge and tech. For aquaculture
 - increasing importance of ornamental fish for aquaculture
 - consumer preferences scenario
 - labelling and certification as marketing tool (desinformation)
 - fish good molecules in other products ; blooming industry using marine molecules
 - reduction of chronic pollution

FEUFAR		Name: Superfish				Global system	
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance			
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems				
C-EU Seafood Markets and economics	Responsible World	Innovative World	Shopping World	Expensive Fish	Ready Made Fish Meal		
D - Social Dynamics	Urban Ecology	Green Industrialization	Tourist Rather than Fisherman	Fishermen Know Better	We Need the Sea Production		
E- Ecosystems	Starts Bad Gets Better	Global Meltdown	Local Solutions for Global Problems	Super-green			
F - Production	Free Market	EU Promotes Aquaculture	Science Solves the Problem (healthy and diversified)	Fisheries Bounce Back (natural food)	Fishing Feeds Poor People and Aquaculture	Big fish is a luxury	
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Free trade outlook drives demand for health benefiting food products and adoption of integrated food scientific research agenda which contributes to addressing European paradox. Research provides near-to-the market products which contribute to meeting demands

FEUFAR		Name: Superfish				Global system	
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A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance			
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems				
C-EU Seafood Markets and economics	Responsible World	Innovative World	Shopping World	Expensive Fish	Ready Made Fish Meal		
D - Social Dynamics	Urban Ecology	Green Industrialization	Tourist Rather than Fisherman	Fishermen Know Better	We Need the Sea Production		
E- Ecosystems	Starts Bad Gets Better	Global Meltdown	Local Solutions for Global Problems	Supergreen			
F - Production	Free Market	EU Promotes Aquaculture	Science Solves the Problem (healthy and diversified)	Fisheries Bounce Back (natural food)	Fishing Feeds Poor People and Aquaculture	Big fish is a luxury	
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Utilitarian approach

Coastal demographic trend, increased population, increasing use of the free space along the sea, competition of space.

A:

B: Proactive initiatives, EU

E: Global meltdown

Lacking one hypothesis: energy dimension, more expensive energy may reduce transportation

F: Efficiency of aquaculture, use of marine proteins

G: practical and util.

FEUFAR		Global system					
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	
A- World Context	Free trade and Production Specialities	Short Term Economy	Protectionism for Food	World Governance			
B- Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems				
C- EU Seafood Markets and economies	Responsible World	Innovative World	Shipping World	Expensive Fish	Ready Made Fish Meal		
D- Social Dynamics	Urban Ecology	Green Industrialization	Tourist Rather than Fisherman	Fishermen Know Better	We Need the Sea Production		
E- Ecosystems	Starts Bad Gets Better	Global Meltdown	Local Solutions for Global Problems	Supergreen			
F- Production	Free Market	EU Promotes Aquaculture	Science Solves the Problem (healthy and diversified)	Fisheries Bounce Back (natural food)	Fishing Feeds Poor People and Aquaculture	Big fish is a luxury	
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- A: Climate change, local tensions, protectionism for food
- B: trials and regional experiments
- C: Market segmentation, high end consumers buy fish, most consumers go by price
- D: Urban green attitude, multiple interest groups competing, more tension
- E: lower recruitment. Invasive species. Fishing at lower levels. Pollution, antibiotics et.c
- F: Commercial fleet will be reduced, science improves the rest of the fleet.
- G: Shift to applied research, better coordination

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THE FUTURE OF EUROPEAN FISHERIES AND AQUACULTURE RESEARCH

Regionalisation: Local solutions for marine resources

Reminder : The scale of the region (international or local: Baltic vs. Cornwall) determines whether it will be successful for cooperation and management and production.

Nationalism						
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance		
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems			
C-EU Seafood Markets and economics	Responsible World	Innovative World	Shopping World	Expensive Fish	Ready Made Fish Meal	
D - Social Dynamics	Urban Ecology	Green Industrialization	Tourist Rather than Fisherman	Fishermen Know Better	We Need the Sea Production	
E- Ecosystems	Starts Bad Gets Better	Global Meltdown	Local Solutions for Global Problems	Supergreen		
F - Production	Free Market	EU Promotes Aquaculture	Science Solves the Problem (healthy and diversified)	Fisheries Bounce Back (natural food)	Fishing Feeds Poor People and Aquaculture	Big fish is a luxury
G-Research policies	Pop Idol (a change in priorities)	European drive to technological transfer (addressing the european paradox)	Funding Nemo	C'est la Vie (business as usual)	Public Money Rules Research (competition overtakes cooperation)	

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THE FUTURE OF EUROPEAN FISHERIES AND AQUACULTURE RESEARCH

Regionalisation (local solutions for marine resources)

- migrating stocks suffer from poor cooperation but local stocks flourish
- what is a region : from RAC regions to smaller regions (mosaic of different regulations)
- CFP experiment has failed. Regain control of own sea/fish
- consumer prefer national label products and fresh local products
- development of native species in aquaculture
- locally bred researchers (national preference)
- reduced cooperation among E institutes (but many experiments)
- tight control over imports and exports

FEUFAR Name: Hokey cockey (everything shaken up) e titre						
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance		
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems			
C-EU Seafood Markets and economics	Responsible World	Innovative World	Shopping World	Expensive Fish	Ready Made Fish Meal	
D - Social Dynamics	Urban Ecology	Green Industrialization	Tourist Rather than Fisherman	Fishermen Know Better	We Need the Sea Production	
E- Ecosystems	Starts Bad Gets Better	Global Meltdown	Local Solutions for Global Problems	Super-green		
F - Production	Free Market	EU Promotes Aquaculture	Science Solves the Problem (healthy and diversified)	Fisheries Bounce Back (natural food)	Fishing Feeds Poor People and Aquaculture	Big fish is a luxury
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Effects of WFD and other management systems blocks aquaculture development, fisheries stocks collapse which leads to centralized management in Europe, leads to split of Denmark, Spain and UK from Europe, so they can take all the fish they want, prices increase and fish becomes a luxury product, city dwellers can pay and put a block on development in the sea (nanny state) force cleaner technologies, pressure put on industry to behave properly – leading to patchwork of productive & non productive areas. More money goes into marine research.

FEUFAR Crisis management						
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance		
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems			
C-EU Seafood Markets and economics	Responsible World	Innovative World	Shopping World	Expensive Fish	Ready Made Fish Meal	
D - Social Dynamics	Urban Ecology	Green Industrialization	Tourist Rather than Fisherman	Fishermen Know Better	We Need the Sea Production	
E- Ecosystems	Starts Bad Gets Better	Global Meltdown	Local Solutions for Global Problems	Supergreen		
F - Production	Free Market	EU Promotes Aquaculture	Science Solves the Problem (healthy and diversified)	Fisheries Bounce Back (natural food)	Fishing Feeds Poor People and Aquaculture	Big fish is a luxury
G-Research policies	Pop Idol (a change in priorities)	European drive to technological transfer (addressing the European paradox)	Funding Nemo	C'est la Vie (business as usual)	Public Money Rules Research (competition overtakes cooperation)	

New target species, conflict and tensions prevalence of illegal fishing. Offer can meet demand but with very variable quality Importance of processing sector. WAKE UP CALL – we need sea production, need for scientific advice = intermediate change Focus on local solutions for local problems – still have sea aquaculture, land based aquaculture and ranching

FEUFAR		Global system					
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance			
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems				
C-EU Seafood Markets and economies	Responsible World	Innovative World	Shopping World	Expensive Fish	Ready Made Fish Meal		
D - Social Dynamics	Urban Ecology	Green Industrialization	Tourist Rather than Fisherman	Fishermen Know Better	We Need the Sea Production		
E- Ecosystems	Starts Bad Gets Better	Global Meltdown	Local Solutions for Global Problems	Super-green			
F - Production	Free Market	EU Promotes Aquaculture	Science Solves the Problem (healthy and diversified)	Fisheries Bounce Back (natural food)	Fishing Feeds Poor People and Aquaculture	Big fish is a luxury	
G-Research policies	Pop Idol (a change in priorities)	European drive to technological transfer (addressing the European paradox)	Funding Nemo	C'est la Vie (business as usual)	Public Money Rules Research (competition overtakes cooperation)		

Regional actors in a global market

Move away from globalisation, regional actors more important Picked the best fits to that starting point: B: Local and regional solutions, heading is good, don't agree to all under it. Better management of stocks. C: Market segmentation, high end consumers buy fish F: Mass production aquaculture, limited numbers of species (don't agree to the rest), Fisheries Bounce back? Constriction of vessel numbers G: Industry leads the research agenda.

FEUFAR		Name: Managing the seas				Global system	
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance			
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems				
C-EU Seafood Markets and economies	Responsible World	Innovative World	Shopping World	Expensive Fish	Ready Made Fish Meal		
D - Social Dynamics	Urban Ecology	Green Industrialization	Tourist Rather than Fisherman	Fishermen Know Better	We Need the Sea Production		
E- Ecosystems	Starts Bad Gets Better	Global Meltdown	Local Solutions for Global Problems	Super-green			
F - Production	Free Market	EU Promotes Aquaculture	Science Solves the Problem (healthy and diversified)	Fisheries Bounce Back (natural food)	Fishing Feeds Poor People and Aquaculture	Big fish is a luxury	
G-Research policies	Pop Idol (a change in priorities)	European drive to technological transfer (addressing the European paradox)	Funding Nemo	C'est la Vie (business as usual)	Public Money Rules Research (competition overtakes cooperation)		

Quality will create tariff barriers and response is to remove access to fishing grounds outside Europe leading to shortages on European market. Nations given fisheries management (not at EU level) leads to bargaining and local ITQs Aging population and buying power, fish becomes a luxury food, high tech products. Food security is a concern but users must pay for access, probable trade wars (and disagreements about diff. Activities in coastal zone) Can you enforce maritime policy at EU level (only at nation level)

FEUFAR		Name: Regionalisation				Global system	
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance			
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems				
C-EU Seafood Markets and economics	Responsible World	Innovative World	Shopping World	Expensive Fish	Ready Made Fish Meal		
D - Social Dynamics	Urban Ecology	Green Industrialization	Tourist Rather than Fisherman	Fishermen Know Better	We Need the Sea Production		
E- Ecosystems	Starts Bad Gets Better	Global Meltdown	Local Solutions for Global Problems (humans part of ecosystem)	Super-green			
F - Production	Free Market	EU Promotes Aquaculture	Science Solves the Problem (healthy and diversified)	Fisheries Bounce Back (natural food)	Fishing Feeds Poor People and Aquaculture	Big fish is a luxury	
G-Research policies	Pop Idol (a change in priorities) More focus on socioeconomic impacts	European drive to technological transfer (addressing the European paradox)	Funding Nemo Funding increases	C'est la Vie (business as usual)	Public Money Rules Research (competition overtakes cooperation)		

F & A problems treated at regional level, stakeholders consulted and involved. Independent scientific advice is heeded. Problems localised and environmental concerns, scientists and fishermen collaborate. Humans recognised as part of wider ecosystem. More funding for socioeconomic research and environmental impact assessment.

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Doomsday: negative impact of European fisheries & aquaculture on world ecosystems

FEUFAR Dooms day						
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
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- FEUFAR** Dooms day (negative impact of EU fisheries and aquaculture on world ecosystems)
- rich countries scavage the world for seafood product
 - management does not reduce fishing capacity
 - stock collapse
 - research paid by customer does not solve the problem
 - by 2020, decline of aquaculture by lack of fish feed and intensive use of antibiotics
 - marine pollution and mad salmon disease
 - high temperature of the ocean (climate change) affects ecosystems
 - environmental restrictions lifted to obtain short term economic gains
 - policies not enforced

FEUFAR Worst Case scenario						
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
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World context: division poor / rich countries; Regulation: Need for tailored made solutions – inputs from different stakeholders. Fishermen left out only bureaucratic decision process. Overfishing, depletion of stocks Research: need for basic research as well, need for uptake by policy

FEUFAR Cynical Scenario						
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance		
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems			
C-EU Seafood Markets and economics	Responsible World	Innovative World	Shopping World	Expensive Fish	Ready Made Fish Meal	
D - Social Dynamics	Urban Ecology	Green Industrialization	Tourist Rather than Fisherman	Fishermen Know Better	We Need the Sea Production	
E- Ecosystems	Starts Bad Gets Better	Global Meltdown	Local Solutions for Global Problems	Supergreen		
F - Production	Free Market	EU Promotes Aquaculture	Science Solves the Problem (healthy and diversified)	Fisheries Bounce Back (natural food)	Fishing Feeds Poor People and Aquaculture	Big fish is a luxury
G-Research policies	Pop Idol (a change in priorities)	European drive to technological transfer (addressing the european paradox)	Funding Nemo	C'est la Vie (business as usual)	Public Money Rules Research (competition overtakes cooperation)	

Cynical / status quo scenario; Competition for resources: water, energy, commodities, etc. Lobbying at both national and sectoral .Biotechnological solutions to fill in gaps. Economy more important than environment. Research response – local research response for sector promotion rather common good

FEUFAR		Name: Collapse!!!!				Global system	
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance			
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems				
C-EU Seafood Markets and economics	Responsible World	Innovative World	Shopping World	Expensive Fish	Ready Made Fish Meal		
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Short-term view with little funding of research, only interested in money and not sustainability. Driven by costs and markets. Stocks collapse, disease outbreaks, pollution etc. etc. Fish products become very expensive, Europe not able to respond and adapt adequately.

FEUFAR		Name: Economy rules the world				Global system	
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance			
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems				
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Economy rules the world (business as usual)

AH1 or H2 (free trade); Environment is the short leg of sustainability Industry and economy rules Fisheries and aquaculture is a minor topic at EU level, nations take fisheries management in their own hands Consumer driven market and fishing down the foodweb and coastal areas develop different activities Stock collapse replaced by aquaculture Then intensive aquaculture(with GM fish) for local production Business as usual for research, research poorly focused

FEUFAR		Name: Head in the sand				Global system	
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance			
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems				
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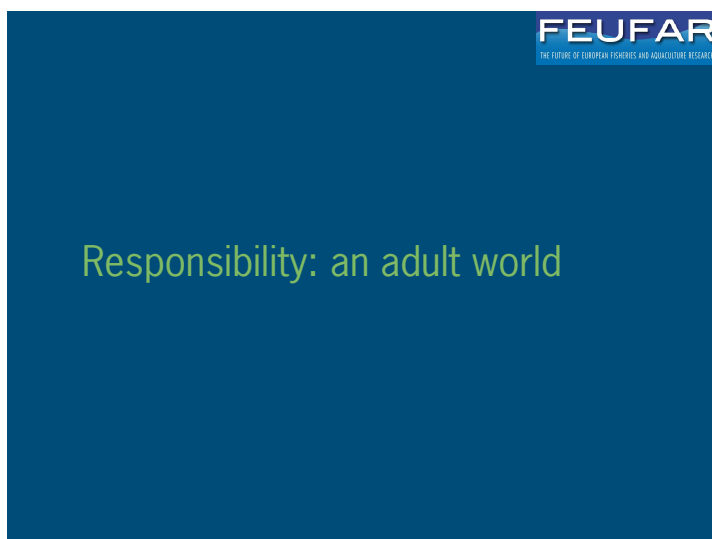
Face more rapid climate change than expected and with reduced funds for marine research, unable to provide management tools to address conflicts between economic demands and sustainable production, and thus unable to respond in time and hence stocks collapse.

FEUFAR		Crisis management				
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance		
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New target species, conflict and tensions prevalence of illegal fishing
 Offer can meet demand but with very variable quality
 Importance of processing sector
 WAKE UP CALL – we need sea production, need for scientific advice = intermediate change
 Focus on local solutions for local problems – still have sea aquaculture, land based aquaculture and ranching

FEUFAR		Name: Hokey cockey (everything shaken up) e titre				
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance		
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems			
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D - Social Dynamics	Urban Ecology	Green Industrialization	Tourist Rather than Fisherman	Fishermen Know Better	We Need the Sea Production	
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Effects of WFD and other management systems blocks aquaculture development, fisheries stocks collapse which leads to centralized management in Europe, leads to split of Denmark, Spain and UK from Europe, so they can take all the fish they want, prices increase and fish becomes a luxury product, city dwellers can pay and put a block on development in the sea (nanny state) force cleaner technologies, pressure put on industry to behave properly – leading to patchwork of productive & non productive areas. More money goes into marine research.



FEUFAR		Responsible				
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
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FEUFAR	Responsibility (an adult world)
	<ul style="list-style-type: none"> ➤ consumer only demand products from sustainable sources ➤ fishermen understand that they need to maintain stocks ➤ non (less) polluting aquaculture. Replacement of fish meal and fish oil by vegetable + herbivorous species ➤ fishermen develop less damaging gears and practices ➤ subsidies at the right place and for the right thing ➤ fishing quotas are owned and traded but some are bought by NGOs and recreational fishing (solves overcapacities) ➤ participatory management of both fisheries and aquaculture

FEUFAR Name: Think globally and act locally Global system						
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance		
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems			
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Think globally and act locally

Polarization between economy and governance, local and global. Marine environment governed by EU but more responsibility to fishermen, Local consensus with all stakeholders Segmented market: to expensive to low cost Diversification of activities, so politically vessel owners are not the only stakeholder and fishermen need the backing from science and collaborate Cleaner technologies ; Intensive aquaculture for limited number of species and local scale + fleet reduction “European drive technology transfer” but with stable budget or “C’est la vie” or business as usual with technological transfer awareness (fishing gears and biotech for aquaculture)

FEUFAR Property Rights for fishermen						
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance		
B-Regulation	Industry Responsibility	Integrated Europe	Local Solutions for Local Problems			
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Responsibilities to fishers – self regulation, avoid tragedy of the commons, CFP to be revised to take on such a management tool.
Rights transferred to regional authorities in charge of the stocks management, « cartel » type organisation

FEUFAR More responsible world						
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6
A- World Context	Free trade and Production Specialties	Short Term Economy	Protectionism for Food	World Governance		
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Starting point: reduction of subsidies, increase of energy and labour cost – restructuration of fisheries sector. More efficient fleet / capacity reduction – industry responsible to manage the stocks, more responsible behaviour, increase technological innovation. Market: fish more valuable species; Regulation: industry more responsible; Potential drawback: risk of dumping if sub optimal fishing, risk for increased unreported discard

FEUFAR Global system						
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Biodiversity: H5 that is a combination of H1 and H4: to little focus on climate change. Massive changes happening right now. Must understand shift in stocks, informed management How to integrate small-scale aquaculture and fisheries informed public participation (Hyp B4) Small fishermen to prosper again, improve natural environment, traditional knowledge Money for energy research must be coordinated, otherwise there will be conflicts Research on labels, strong effort. Coastal zone management

FEUFAR		Global system					
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Green Markets

Green movement putting pressure on retailers Corporate responsibility: supermarkets go green
 Market demand drives the scenario, ecologically driven, Green market drives the scenario : shopping world combined with responsible world, food miles Industry will promote quality labels, env. Labels Labelling, better management of stocks, by catch issues Local solutions/supergreen: Research driven by labelling demands F: Funding Nemo with additions: Industry-driven research on by-catch et.c, eco-systems linked to marine management Aquaculture and animal welfare, ethical issues

FEUFAR		Name: Everything is perfect				Global system	
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Everybody takes responsibility and able to take the best decisions, as individuals and as a collective. Management and cultural attitudes change towards sustainability (“a brave new world”)

FEUFAR
THE FUTURE OF EUROPEAN FISHERIES AND AQUACULTURE RESEARCH

1984: totalitarian European regulation and control for maintaining European sea food

FEUFAR						
1984						
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E- Ecosystems	Starts Bad Gets Better	Global Meltdown	Local Solutions for Global Problems	Supergreen		
F - Production	Free Market	EU Promotes Aquaculture (without GM in that case)	Science Solves the Problem (healthy and diversified)	Fisheries Bounce Back (natural food)	Fishing Feeds Poor People and Aquaculture	Big fish is a luxury
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FEUFAR

1984 (total E regulation and control for maintaining E E seafood production)

- green scenario
- Fleets are under control and stocks can recover
- efficiency in fishing but standardized products
- understanding of species / ecosystem relationship to develop aquaculture
- technology and technocratic driven system
- Binding international agreements about biodiversity conservation, climate change
- EU maritime police force (EMPF)
- research tight monitoring (surveillance, monitoring, technology)

FEUFAR Integrated Ocean Management scenario						
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Under world governance focus on: identification and protection of sensitive habitats (e.g. High Seas) calls for MPA in High Seas for instance Within European context: Maritime policy, Blue Book and related Action Plan, Marine Spatial Planning, cable observatories, oil and gas issues Shift from sector driving forces towards integrated management

FEUFAR Name: Optimism is essential Global system						
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Optimism is essential (possible variant with “industry responsibility” and “responsible world” from fisheries representatives)

Human health and food is a major issue; Ship identification and tracing Need to take into account local context but solutions have to be global Fisheries bounce back and large poduction of shellfish Association of aquaculture and energy production Public research is fundamental and applied research is done by the industry

FEUFAR		Name: Eco-warrior				Global system	
Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	
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Driver	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	
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Annex I: Agenda

Tuesday, March 11th The Expert and Stakeholder Workshop

<i>Time</i>	<i>Subject</i>	<i>Facilitator</i>	<i>Chair</i>	<i>Notes</i>
			Luc van Hoof	George Tserpes
09:00	Opening and welcome	Luc van Hoof		
09:15	The FEUFAR project so far	Luc van Hoof		
09:30	Scenario (from micro to macro scenarios)	Véronique Lamblin		
10:00	Working Groups (4) number 1-4			
10:30	Coffee break			
12:00	Report back from groups	Véronique Lamblin		
13:00	LUNCH			

<i>Time</i>	<i>Subject</i>	<i>Facilitator</i>	<i>Chair</i>	<i>Notes</i>
			Luc van Hoof	Audun Iversen
14:00	Stakes, risks and challenges in scenarios	Véronique Lamblin		
14:15	Working Groups (4) by scenario			
16:00	Coffee break			
17:00	Report back from groups	Véronique Lamblin		
18:00	Closing	Luc van Hoof		
20:00	DINNER			