This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773330 (GAIN)

GAIN SUMMER SCHOOL

Social acceptability of eco-intensified aquaculture products

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This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773330 (GAIN)

Point of Departure

We now live in the **Anthropocene**, the geological age where human agency has become the main driver of the planetary evolution

Social-ecological interactions are no longer merely local or regional but global (human actions and earth system responses)

The marine realm is not free from human use, but a highly contested **globalized sea space** and plays a central role for human survival (i.e. oxygen and food provision)

The Transformation Challenge: Addressing Climate Change and Blue Growth

Marine Aquaculture – great potential as nutritional seafood in the future, not least in areas where fish stocks are forecast to decline

- Catalysing bold, pragmatic ocean solutions in governance, technology and finance
- Creating new partnerships between humanity and oceans:

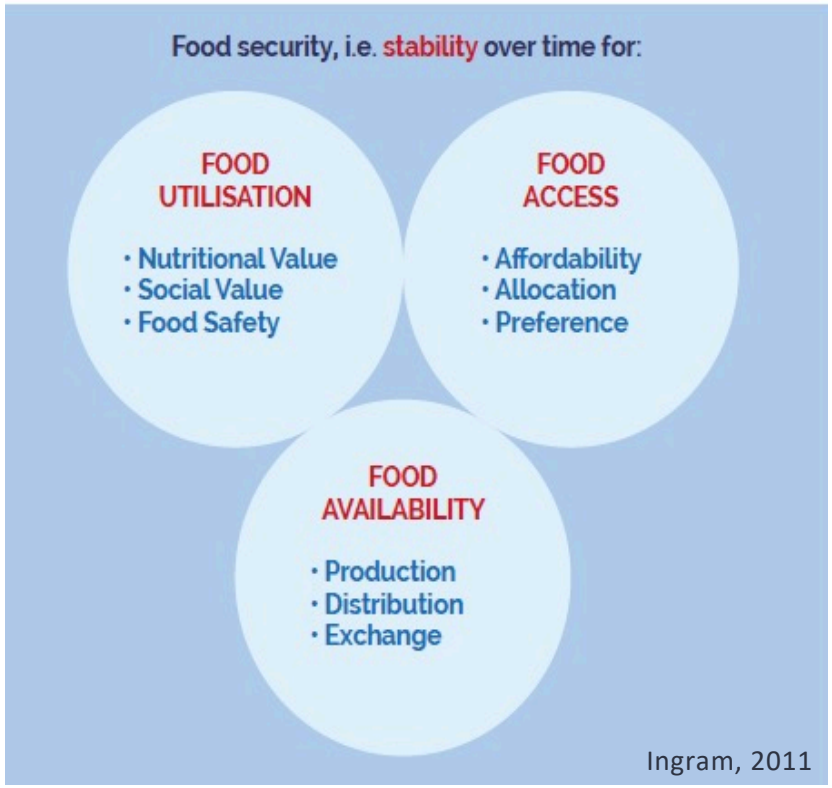
  Protect-Produce-Prosper

- Supporting the SDGs for better futures whilst addressing food security

Utilising low-carbon sources of protein from the ocean

Could support emission reductions of up to 1.24 GtCO2e each year by 2050.

The Multiple Dimensions of Food Security



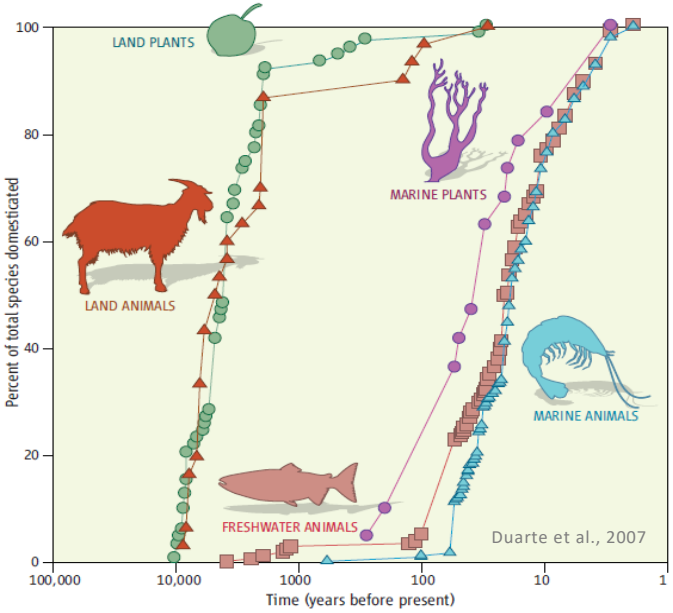
The **triple burden**:

- Undernutrition
- Mirco-nutrient deficiencies
- Overnutrition

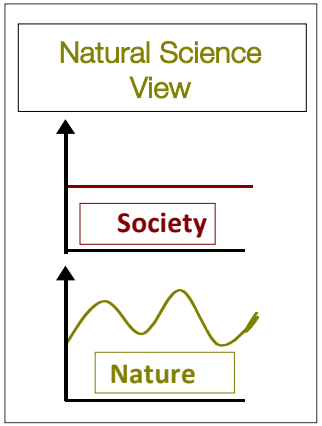
Aquaculture as transformative food security driver

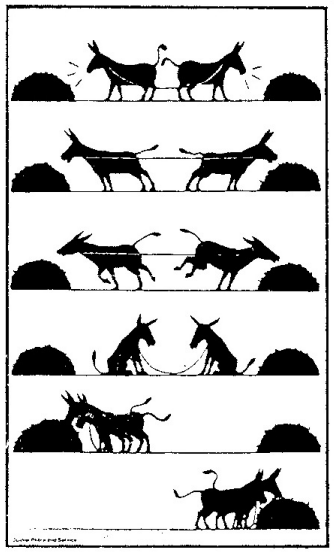
- We experience a marine Neolithic revolution – the **Blue Revolution** or **"Blue Growth"**
- This revolution is still in its infancy to how to **capture the socio-economic effects**
- What newness emerges through the **interactions between people, food, and meanings**?

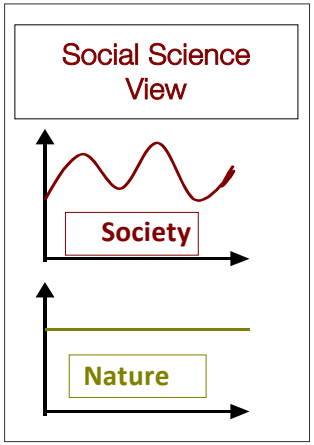
© RMN-Grand Palais / Martine Beck-Coppola - Louis-Joseph Yperman, *La pêche au vivier*, mural painting at the Palais des Papes, Avignon, France, 1910 (original 1343-1344)



The Hidden Dilemma of Addressing the Interactions Between People, Food, and Meanings







Points of Emphasis & Commonality

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Theoretical stance

Research goal

Research method, approach

Modified from Marvasti 2004

Points of Emphasis & Commonality

	Positivism
Theoretical stance	How can objective research methods capture reality?
Research goal	Which universal laws explain causes of environmental change?
Research method, approach	Numerical statistics, classifications & generalisations

Modified from Marvasti 2004

Points of Emphasis & Commonality

	Positivism	Constructivism
Theoretical stance	How can objective research methods capture reality?	How is reality socially constructed?
Research goal	Which universal laws explain causes of environmental change?	How do situational and cultural variations shape reality?
Research method, approach	Numerical statistics, classifications & generalisations	Context-specific analysis, in-depth understanding

Modified from Marvasti 2004

Points of Emphasis & Commonality

	Positivism	Constructivism	Common themes
Theoretical stance	How can objective research methods capture reality?	How is reality socially constructed?	Importance of empirical data
Research goal	Which universal laws explain causes of environmental change?	How do situational and cultural variations shape reality?	Production of knowledge
Research method, approach	Numerical statistics, classifications & generalisations	Context-specific analysis, in-depth understanding	Standardization and objectivity, formulating and testing hypothesis

Modified from Marvasti 2004

The Hidden Dilemma … and Potential Answers…

- Resource use is a social practice endowed with individual and communal understandings of norms and rules of use.
- Focus on the relationships of the different user groups that have different social norms on which they operate
- Pay attention on the role of communication, networks, culture
- Recognise the dynamic co-evolution of decisions made by different stakeholder groups with a given social-ecological system

Transformations in Aquaculture … from a social perspective

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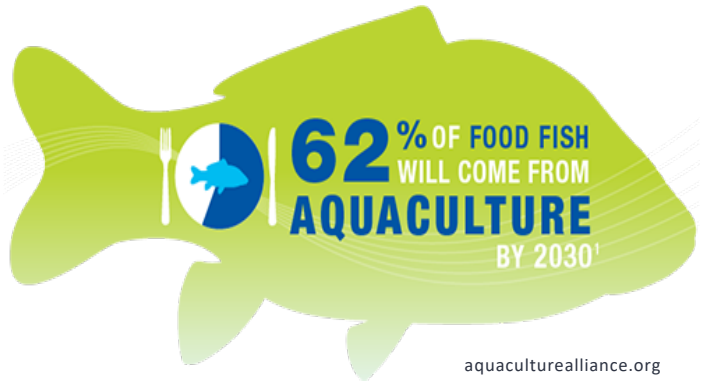
- **Phase-out** and **Phase-in**
- **consciousness development** (i.e. mindset-shifts and new narratives of modernity)
- **structural interventions** required to accelerate transformations (i.e. future-oriented policy-making, regulations, resource allocations and incentive systems)
- **collaborative transformative change** (i.e. by co-production of knowledge with stakeholders and new governance systems)



Issues of Transformation of Marine Aquaculture

- New technologies for utilizing natural resources often presented as a degradation of nature
- **But:** new ways of valuing and relating to marine environment/beings and spaces
- anticipation of less tangible, “softer” impacts, such as how marine cultivation affects our ideas about the marine commons
- Need to identify (subtle) changes resulting from our day-to-day dealings with technology (e.g. the way the mobile phone alters the way we make appointments)

… Aquaculture has many faces and dimensions…

For whom? To what extend? Of what? By whom? How? To what effect?...

Central Questions of Social Sustainability of Eco-Intensified Aquaculture Products

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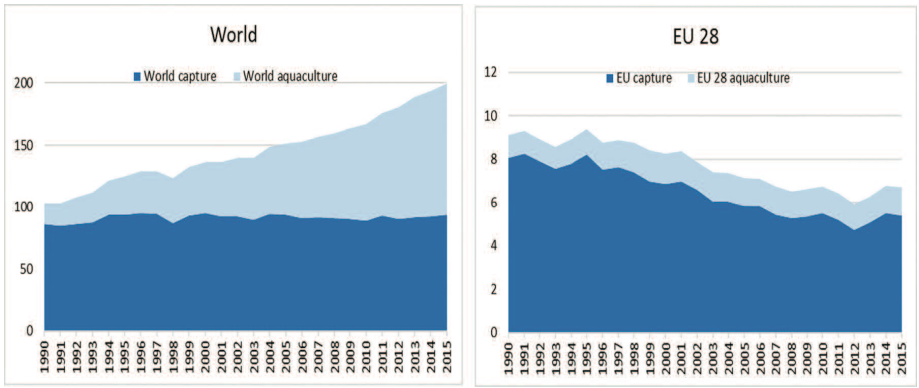
How to capture crucial social dimensions?

How to merge social dimensions in a meaningful way?

How to get context across different countries?

EU-Production Relative to World



G A I

(data from FishStatJ 2017, Bardocz, Jansen et al. (2018))

CHART 4

EU APPARENT CONSUMPTION AND SELF-SUFFICIENCY RATES FOR FISHERIES AND AQUACULTURE PRODUCTS

Source: EUMOFA, based on EUROSTAT (online data codes: fish_aq2a, fish_ca_main and DS-016890), FAO, national administrations and FEAP data. Details on the sources used can be found in the Methodological background.

Importance of aquaculture for European food security in the future
Lack of knowledge on aquaculture among the average consumers

Public Acceptance of Aquaculture

Trend to consume more seafood is likely to gain more importance for sustainable food supply and food security in the EU in the future.

BUT:

Highly contested social acceptance of aquaculture enterprises in EU

Growing market share across EU, public perceptions however remain negative

Result in a reduction of the “social licence to operate”

“social licence to operate” (SLO) versus “social acceptability” (SA) in Aquaculture

SLO is focussed on the **private sector**
- is communication oriented
- fostering best practices for the private sector to be better accepted
- does not require a formal institutional process to guide the exchange

➢ achieving **SLO** is therefore the outcome of a successful exchange between the company and its public at multiple geographical levels

SA refers to a **society at large**
- is a collective community-based evaluation
- implementing governance processes
- based on deliberation and public involvement

➢**SA** as social construction based on a trade-off between pros and cons

Does Prior Knowledge Drive Consumer Choice?

Consumers' attitudes towards sustainable food are based on **personal values, perceived barriers and the confidence of information**

Majority of consumers often uninformed about aquaculture practices and products in terms of environment, health and quality

Socio-economic interests, environmental concerns, aesthetic aspects as well as moral, emotional and personal values **influence the public's acceptance and perception of aquaculture to a different extent**

- ecology-oriented, female and young consumers are more likely to shift to a meat-reduced, vegetarian or vegan lifestyle in western countries
- younger age groups are not yet too consolidated in their views, thus target group to advance information sharing

➢ **Identify the social factors that influence seafood consumption behavior and attitude towards aquaculture**

Knowledge Capture of General Public Perceptions

Target Audience	Stage of Completion
Well-educated Public (Germany)	Pre-testing
Young Research Academics (European)	Poster Survey and Interviews
Aquaculture Research Experts (international)	Poster Survey and Interviews
Students (UK/Germany, other GAIN Partners)	Snowball Sampling Survey
Supermarket-Sector	Poster Survey
Tourism Sector	Ex-ante/ex-Post Survey

Examples of Survey Activity Methods

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- Stakeholder Analysis
- Systematic Literature Review
- Poster Surveys
- Questionnaires
- Semi-structured Interviews
- Knowledge Transfer Events
- Qualitative Content Analysis

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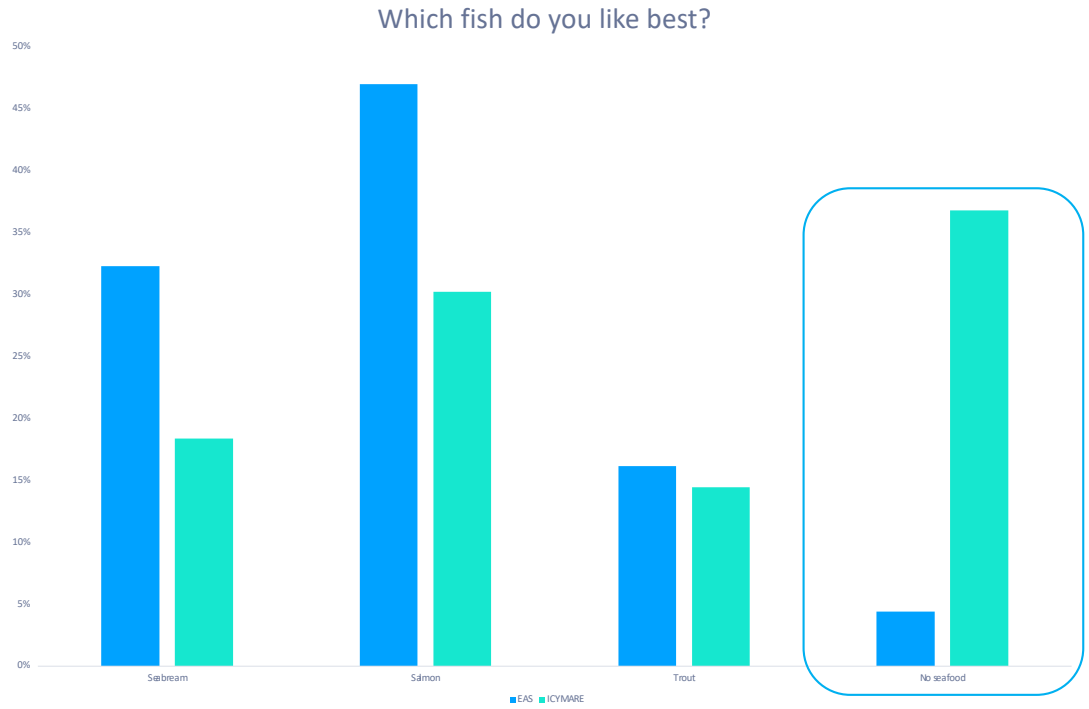
Collated Results of Poster Survey

Place	EAS		ICYMARE	
Overall Participation	68		76	
Which fish do you like best?				
Seabream	32%	22	18%	14
Salmon	47%	32	30%	23
Trout	16%	11	14%	11
No seafood	4%	3	37%	28

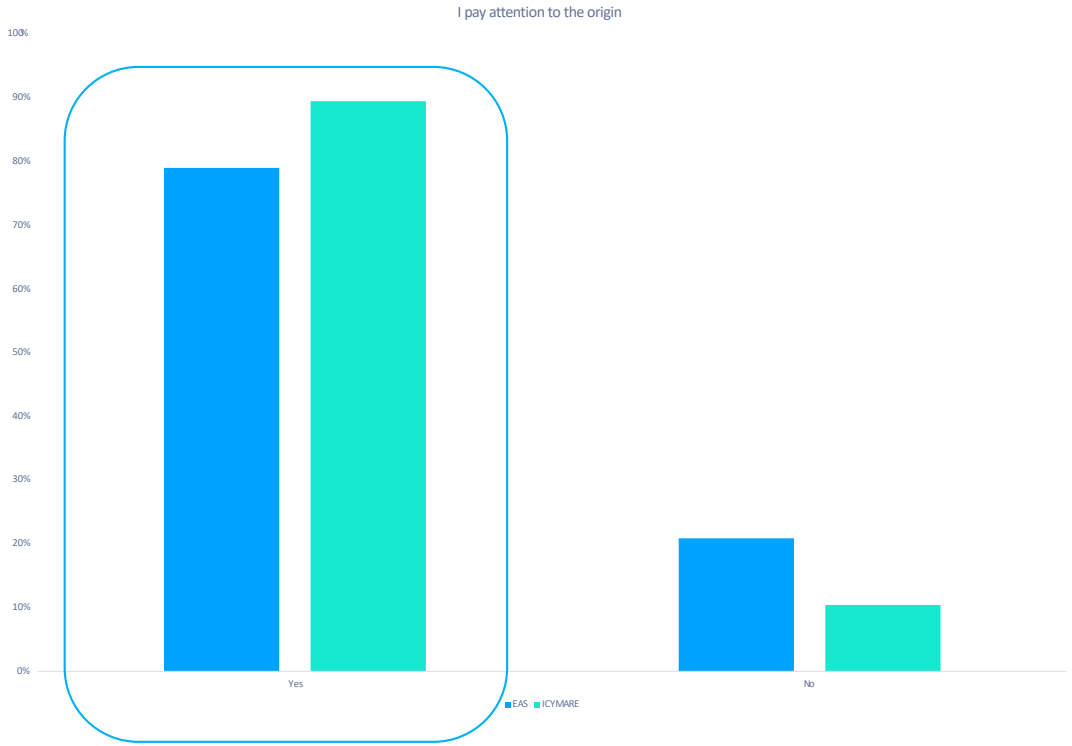


Notable Trend of young academics to prefer vegetarian/vegan food!

Interviewees responded to like to consume salmon, despite assuming that it is not a sustainable product

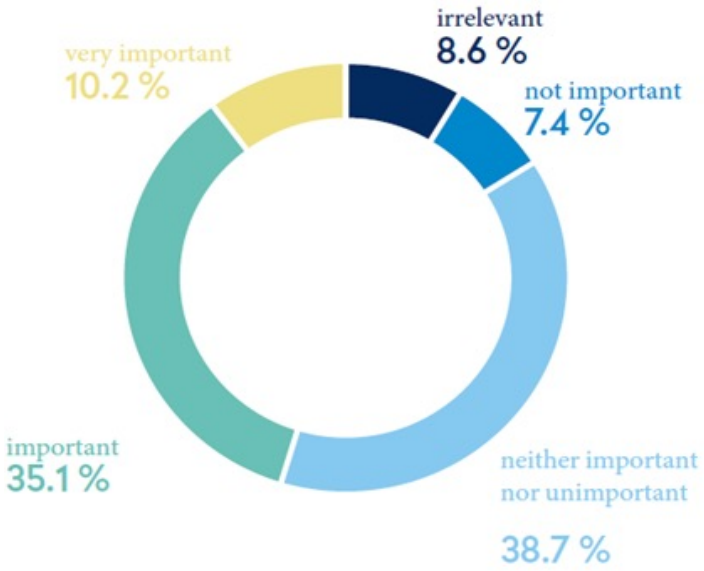
Demand for Social-Constructed Context

Place	EAS		ICYMARE	
Overall Participation	43		86	
I pay attention to the origin				
Yes	34	79%	77	90%
No	9	21%	9	10%



Trend of young academics to prefer locally produced foodstuff

Degree of Importance of Origin for EU-Consumers



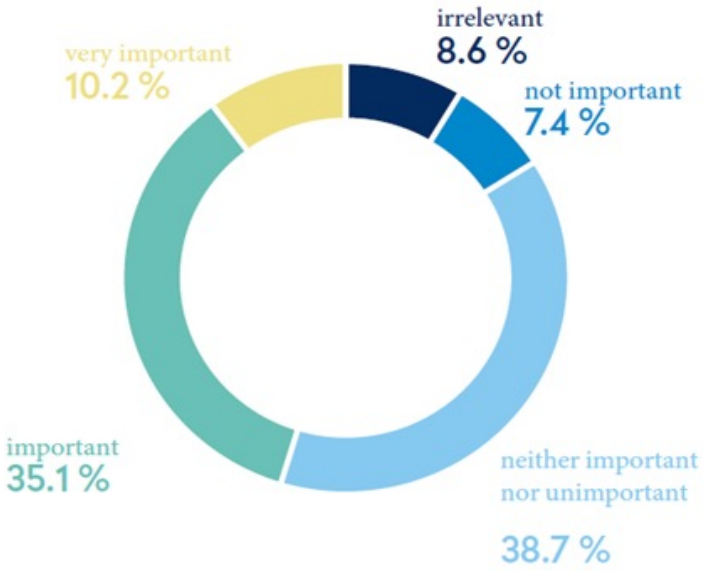
Importance of perception of the country of origin of the seafood product – **BUT** highly contextual:

- over 53 % in Germany prefer products that are from their country or even their region while 27% prefer the EU.
- in Spain only 11% state to prefer if the seafood comes from the EU, but over 82% would prefer if the fish comes from their region or at least their country

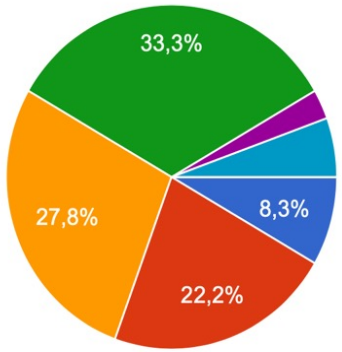
Source: NSC 2019

(Eurobarometer 2018)

Degree of Importance of Origin for EU-Consumers



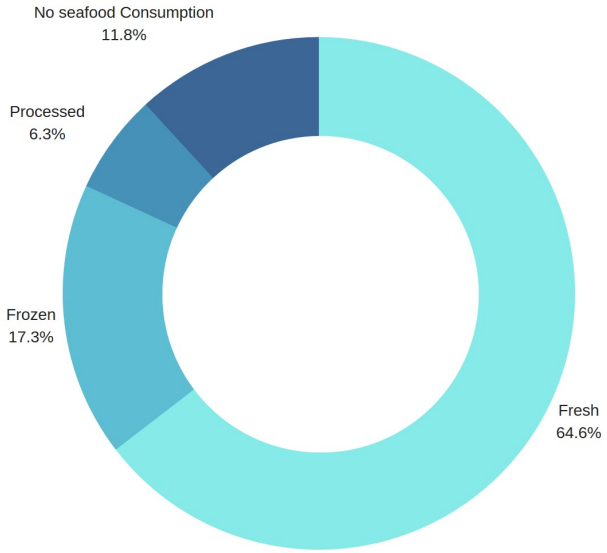
Source: NSC 2019



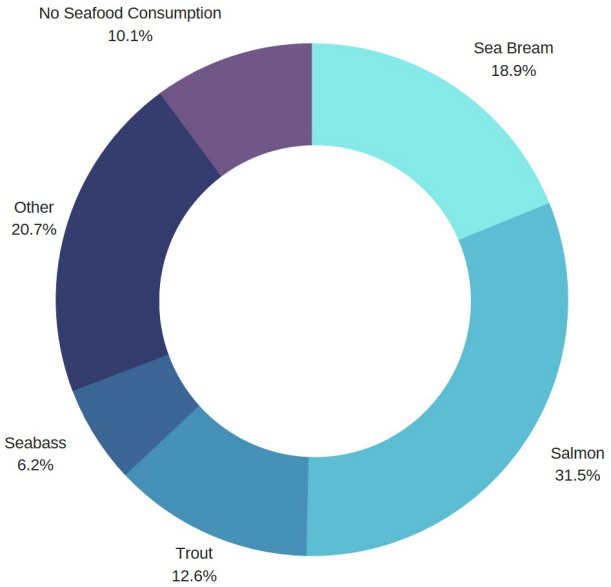
- I prefer wild products
- I prefer farmed products
- I have no preference
- It depends on the type of product
- Don't know
- I don't know if the products I buy or eat are wild or farmed
- Prefer not to answer

(GAIN Summer School Survey 2021, n=36)

Preferences of Seafood Type and Species

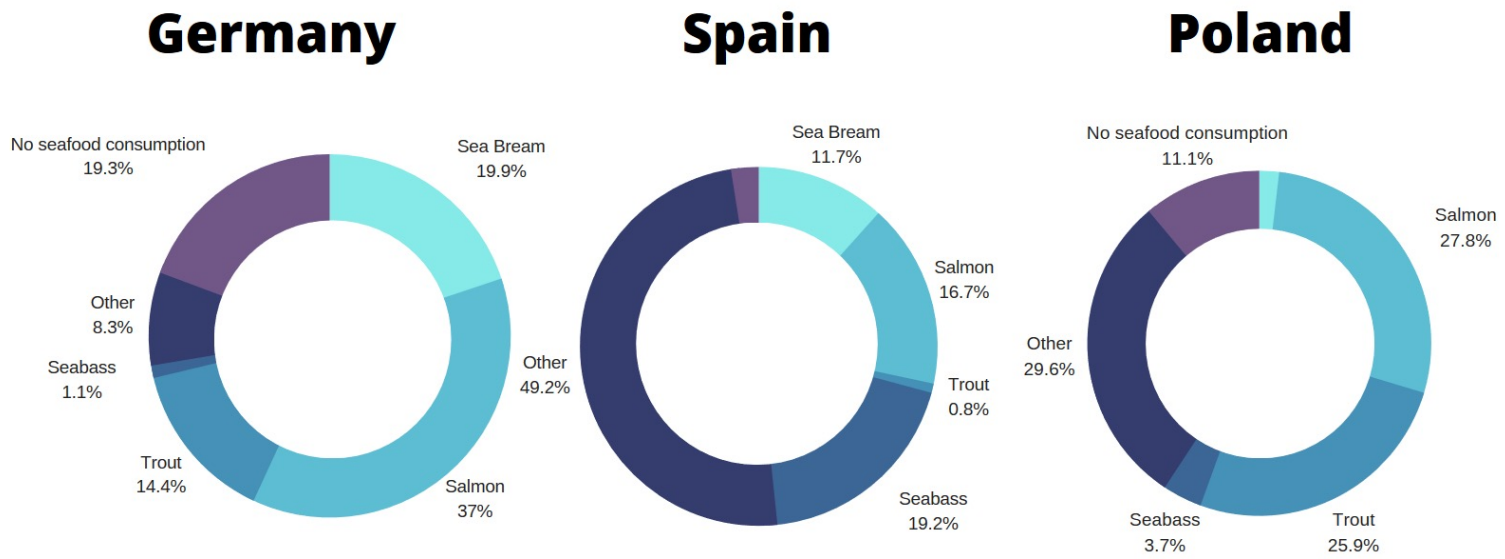


Total percentage of preferred **type** of fish/seafood (Source: own data)



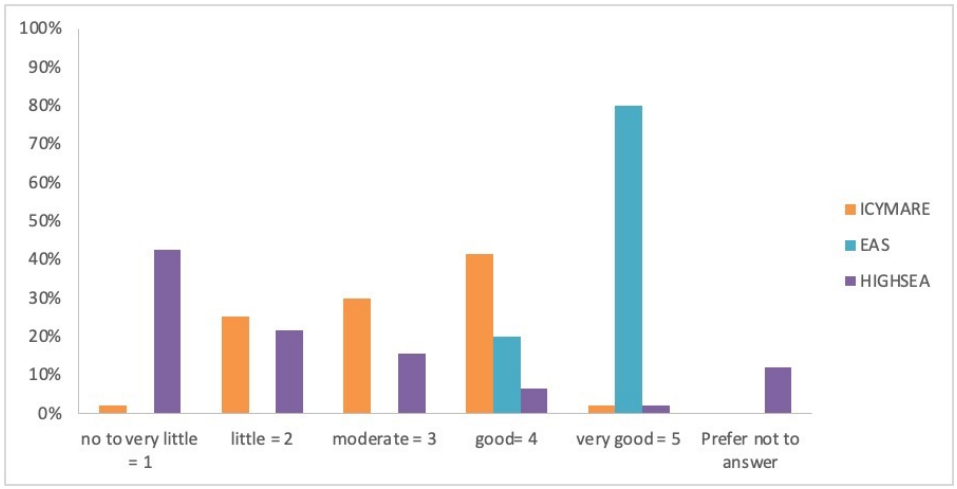
Distribution of stated aquaculture **species** preference (Source: own data)

Preferences of Seafood Species per Country

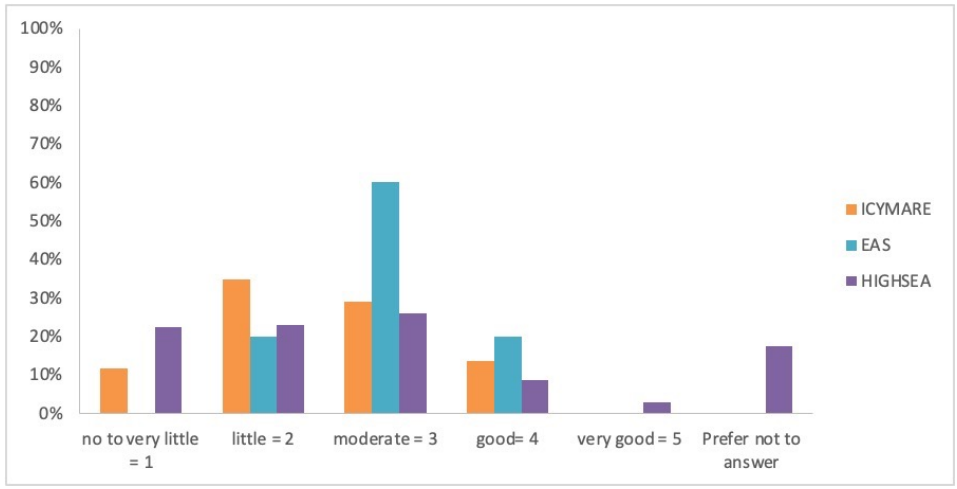


Distribution of aquaculture species preferences per country (Source: own data)

Levels of Acceptance According to Social Positioning and Degree of Knowledge

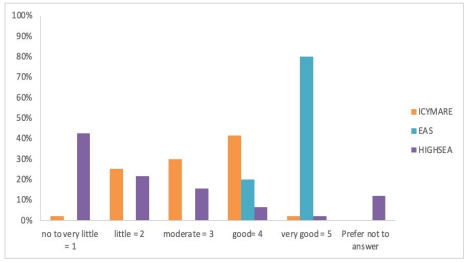


Self-perceived knowledge on aquaculture by questionnaires (n = 437) (Source: own data).



Perceived sustainability of fish farming by questionnaires (n = 430) (Source: own data).

Levels of Acceptance According to Social Positioning and Degree of Knowledge



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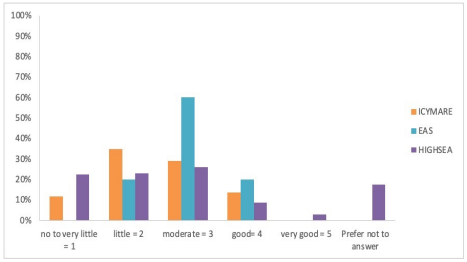
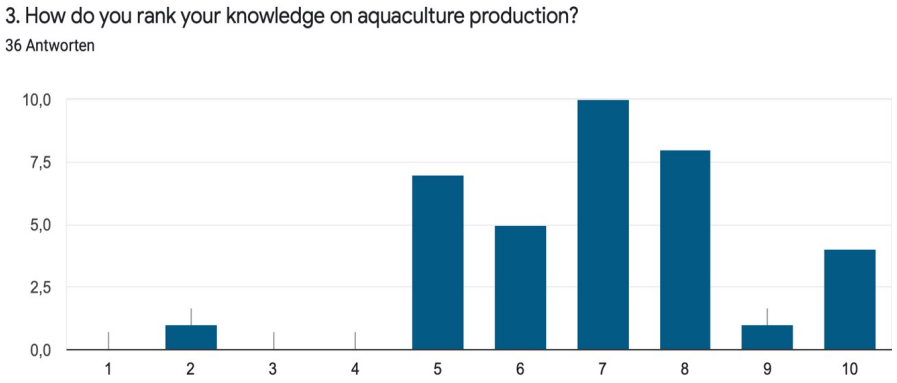
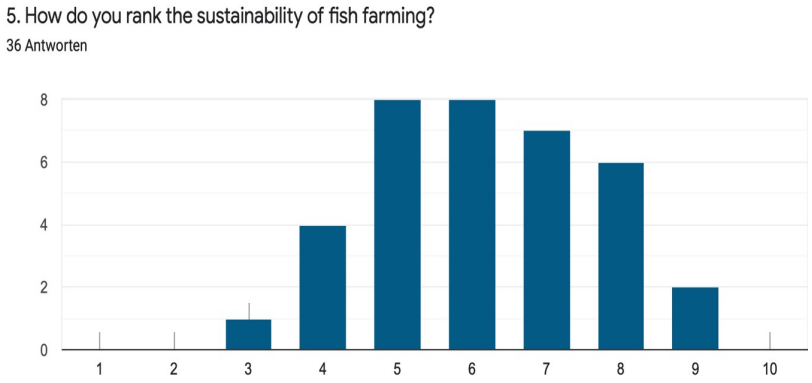


Perceived sustainability of fish farming by questionnaires (n = 430) (Source: own data).





(GAIN Summer School Survey 2021, n=36)

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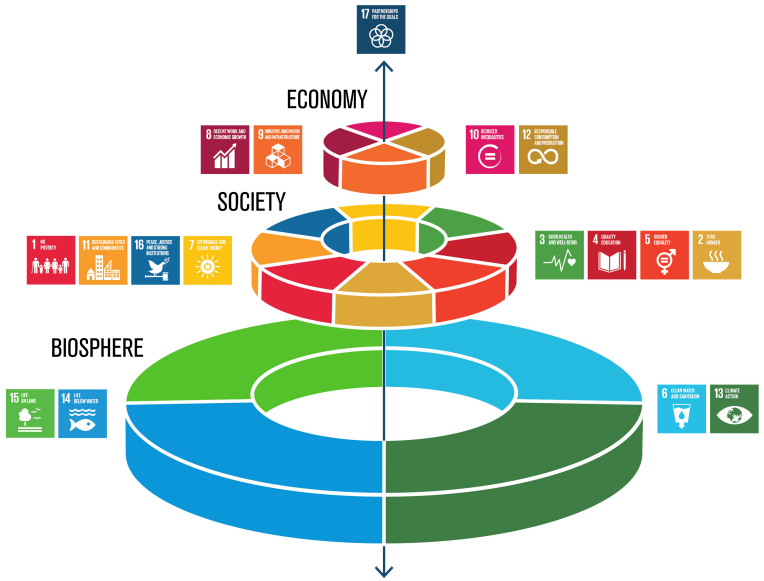
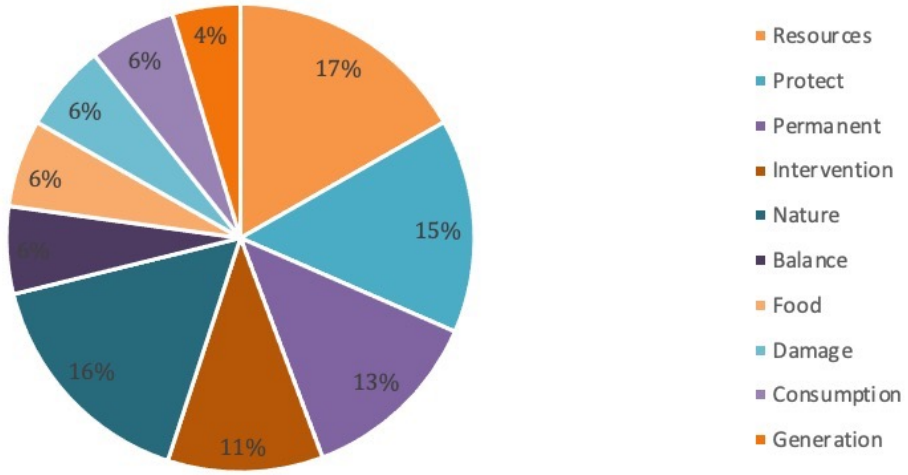
Understanding of Sustainability in Seafood Consumption





Ten most mentioned keywords of sustainability from public respondents (n = 385; Source: own data).

Understanding of Sustainability in Seafood Consumption

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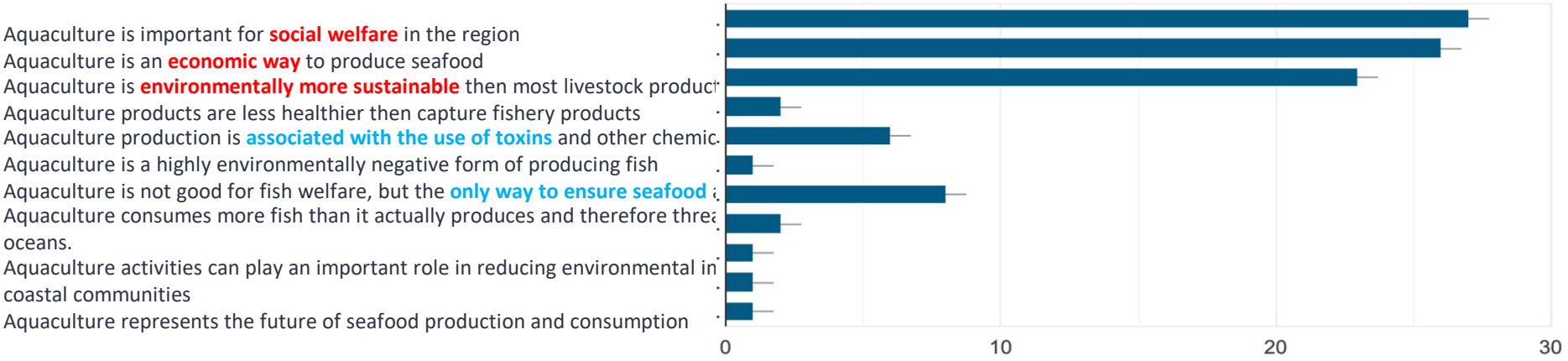
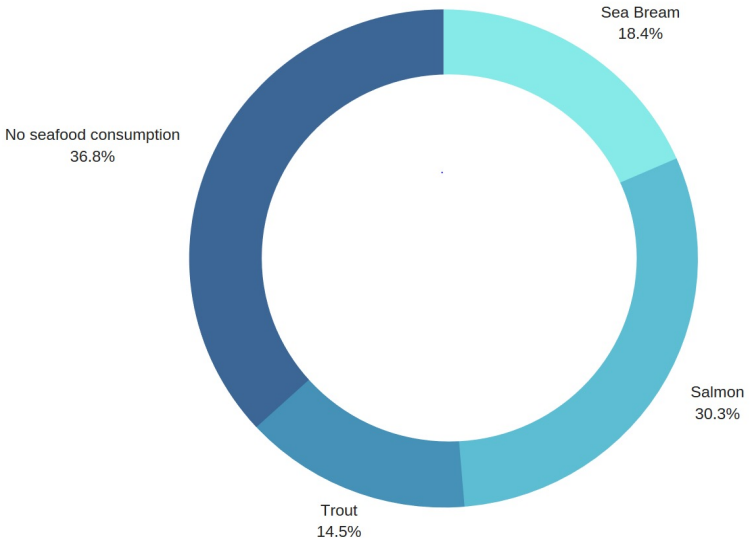


(GAIN Summer School Survey 2021, n=36)

Trend within “Seafood Consumers of Tomorrow”



Distribution of aquaculture species preference in the group of the youngest generation (Source: own data)

Rise of vegetarian and vegan lifestyles – Total of 19% female and 12% men in the EU

-> especially younger generations – Total of 36% of the younger people (15-39) are vegetarians compared to 9% of people above 55 years

-> younger people (15-25) are more likely to buy ready meals (51%) than older age groups (36%)

(Eurobarometer 2018)

Main Pathways for Action Towards Acceptance of Eco-Intensification Measures

Contextual Levels: Consider the different levels from individual to national when analysing and discussing potential change processes.

Regionality: How do distance and particular locations (e.g., fishing areas, working waterfront) affect the needs and perspectives of the consumers?

Actors: Who is engaged in the processes, who is not, who leads the change process and why?

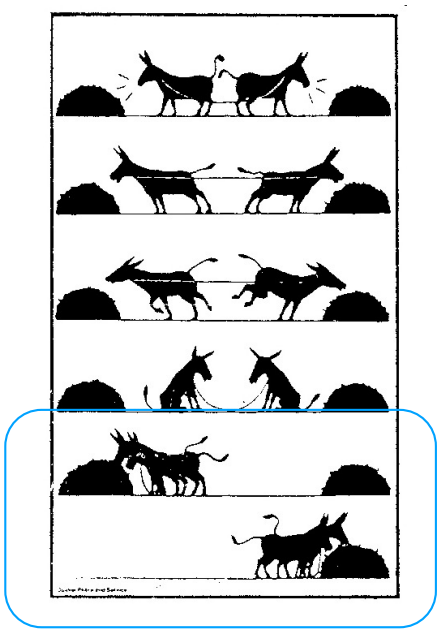
Impact: What does aquaculture mean to the sustainability narrative and who/what is affected or not?

Window-of-opportunity for eco-intensification of aquaculture narrative:

Focus on Regionality/Circular economy – reinforced by COVID-19

Take Home Message 1: Communicating within “the Society”

In every project/engagement process there are drivers/stakeholders we know and matters we don’t know



	Knowns	**Unknowns**
Knowns	**Known Knowns** Drivers/Stakeholders in our plan	**Known Unknowns** Drivers/Stakeholders we know we don’t know
Unknowns	**Unknown Knowns** Assumptions	**Unknowns Unknowns** ??

Take Home Message 2: Capturing Societal Relationships with the Marine System a Question of…

- Demography, infrastructure, globalisation ....
- Investment opportunities, economic power …
- The marine environment and ecosystem

- The planning process
- Responsibilities and functions
- Legal framework

- Stakeholder values and norms
- Attitudes
- Interests

Appreciation and valorization
(readiness to invest)

Adapted from Bruns und Gee (2010)

Take Home Message 3: Focus on Social Equity Outcomes is Necessitated!

Broader recognition of the tension between individual expression and longing for a social recognition for a particular identity community

“Human beings do not just want things that are external to themselves, such as food, drink. They also crave positive judgments about their worth or dignity.”

Quote from Francis Fukuyama
“Identity: The Demand for Dignity and the Politics of Resentment” (2018)

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