A Proposal for European Aquaculture Performance Indicators

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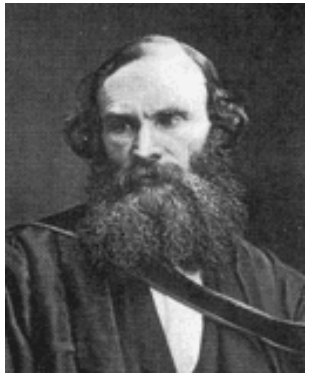
Serving society
Stimulating innovation
Supporting legislation

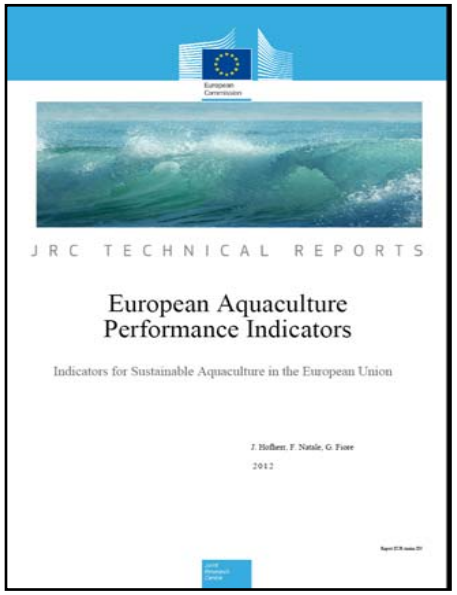
Why measuring Aquaculture?

“If you can not measure it, you can not improve it."



Lord Kelvin (1824 – 1907)

Why indicators?



- To quantify the current positions of Member States
- To identify trends
- To support EU Commission and Member States in:
  - identifying policy priorities
  - benchmarking, monitoring and performance assessment

The JRC proposal does <u>not</u>

- **<u>judge</u>** performance
  - This would require agreed targets (=> policy issue)
- **<u>decide</u>** on contradicting objectives
  - This would need weights for each indicator (=> policy issue)
- **<u>complete</u>** the discussion on aquaculture indicators
  - It is a first step into the area

Obstacles encountered

- Aquaculture sometimes is insufficiently described, relatively young, extremely small or dispersed (e.g. part time and recreational)
- Aquaculture is not covered explicitly by national economic accounting
- Aquaculture is not covered explicitly in food consumption and trade statistics
- There are few data on prices and markets
- The first data on *economic* performance at EU level (from the Data Collection Framework) originate only from 2009 (report: 2012)
  - not including freshwater aquaculture
  - still issues on coverage and data quality

Methodology

- Create reasonable **aquaculture specific indicators**
- Use as much as possible **existing data**
- Run **interviews** to assess dimensions that could not be calculated (e.g. governance)
- Rely on **production statistics** for longer time series and to fill gaps

Calculations

Calculations have been **normalised** to account for

- different size of the MS
- different size of aquaculture activities

Calculations are based on

- **specific data** for single species or species groups or production types
- **aggregation** according to the national production patterns

Validity

The approach has been reviewed

… by the expert working group
on *economic performance of aquaculture*
of the STECF *)

*)Scientific, Technical and Economic Committee for Fisheries

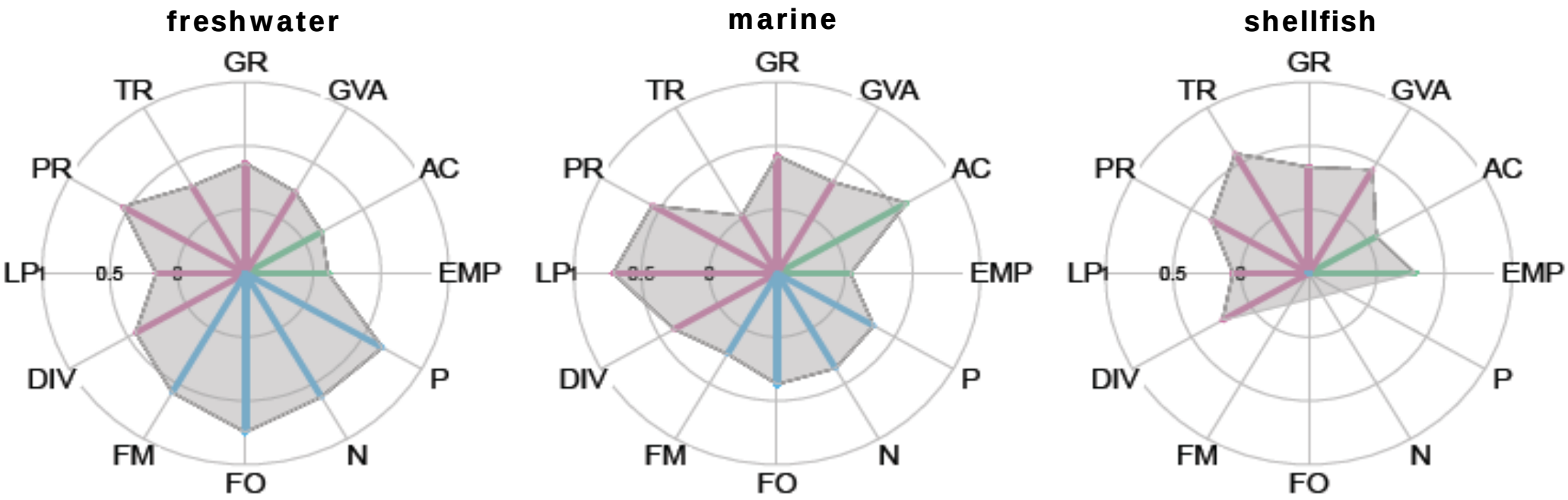
The JRC study defines 12 indicators across 3 different dimensions

Dimension	Indicators	Definition
Economic	• Growth in production volume	*production variation*
	• Gross Value Added (GVA)	*GVA aquac. / GVA agric.*
	• Profitability	*EBIT/turnover*
	• Labour Productivity	*GVA aqua / employees*
	• Trade	*exp. aqua / exp. total fish*
	• Diversification	*contrib. of diff. species*
Social	• Employment	*aquac. jobs/ total jobs*
	• Apparent consumption	*per capita app. consum.*
Environmental	• Fishmeal demand	*quant fishmeal / tot aquac.*
	• Fish oil demand	*quant fish oil / tot aquac.*
	• Nitrogen effluents	*N effluents/aquac. prod*
	• Phosphorous effluents	*P effluents / aquac. prod*

First Findings

Joint
Research
Centre

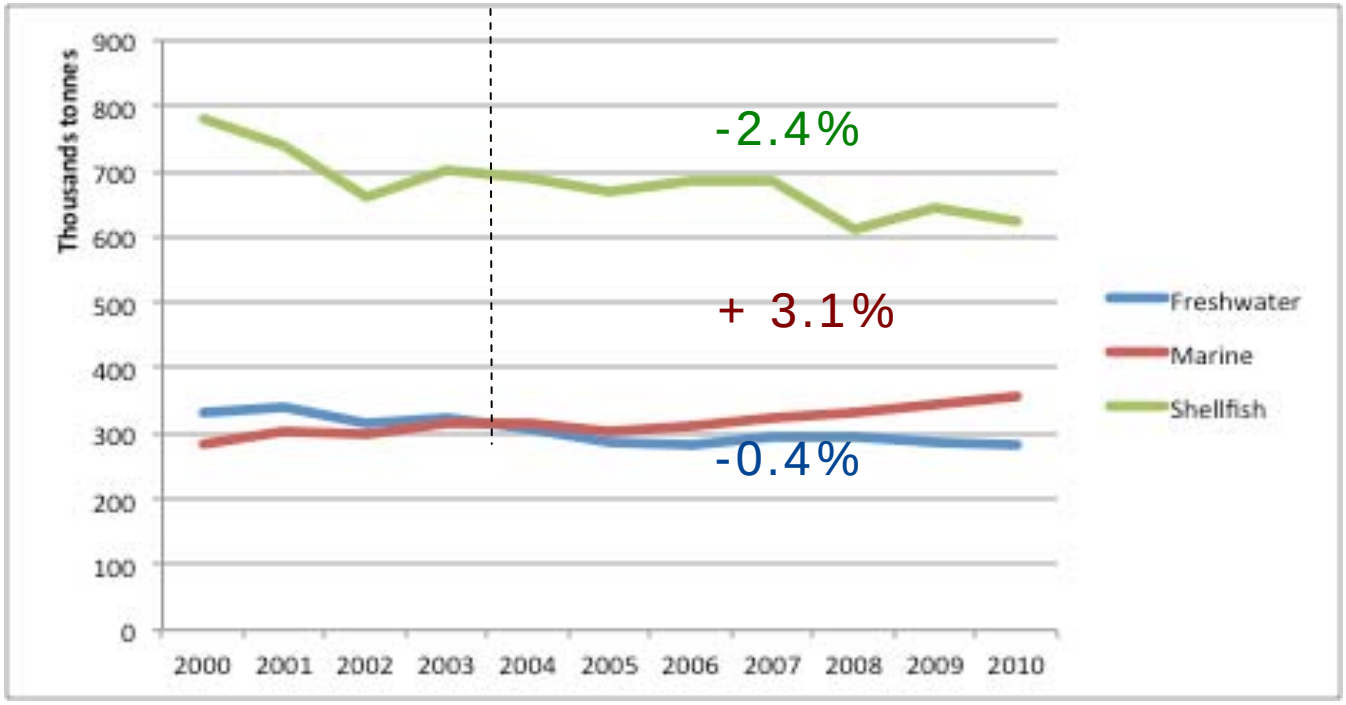
Overall situation at EU level



GR= Growth in production volume, **GVA =** Gross Value Added, **DIV** = Diversification,
LP = Labour Productivity, **PR** = Profitability, **TR** = Trade
AC = Apparent Consumption, **EMP** = employment,
P = Phosphorus effluents, **N** = Nitrogen effluents, **FO** = Fish Oil, **FM** = Fishmeal demand

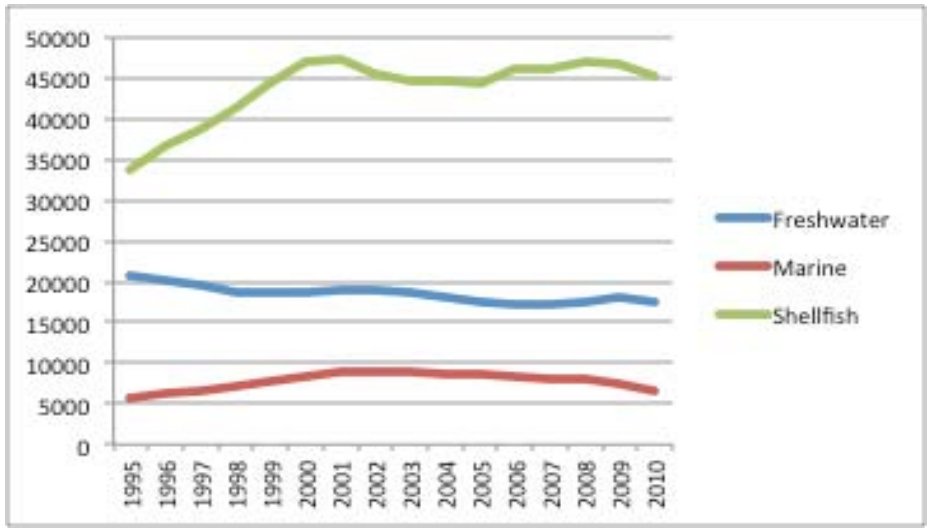
Growth of Production Volume

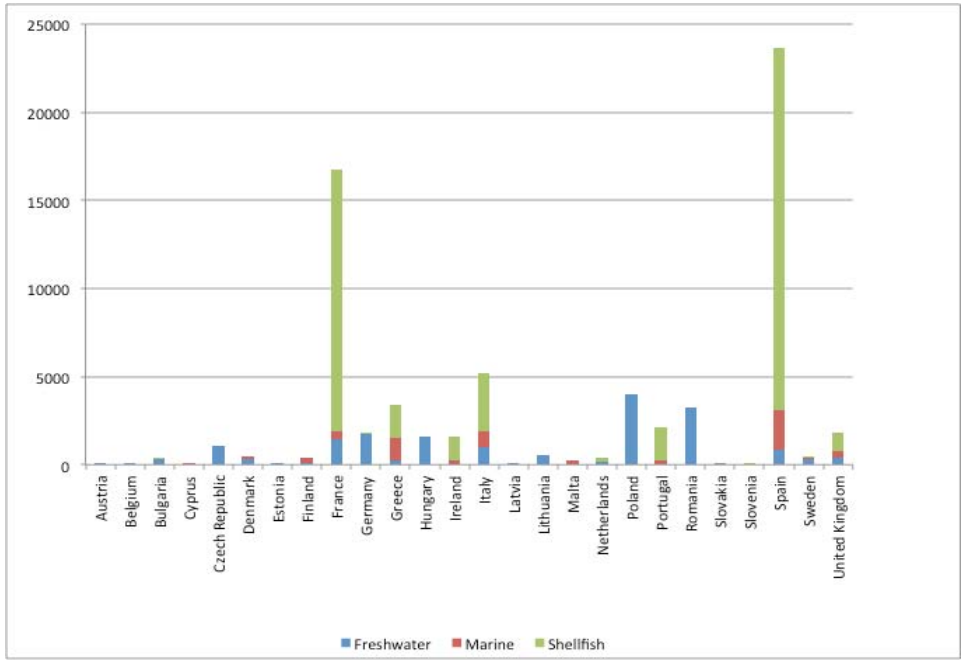
Moderate growth in marine segment, stagnation in freshwater and decrease in shellfish in the last five years



Employment

Most employment in shellfish, often part time or seasonal and with low labour productivity

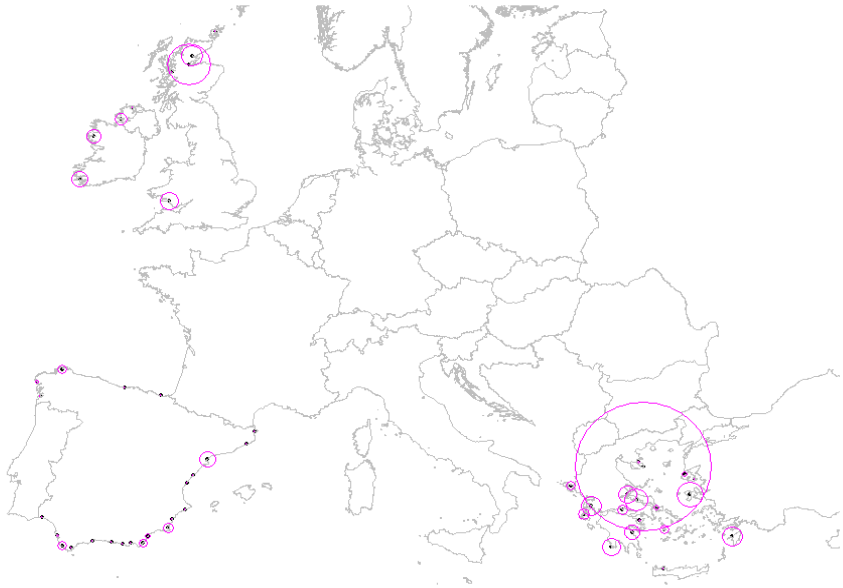




Increase in production in the marine segment is not generating new jobs (due to intensification)

Contribution to employment is local

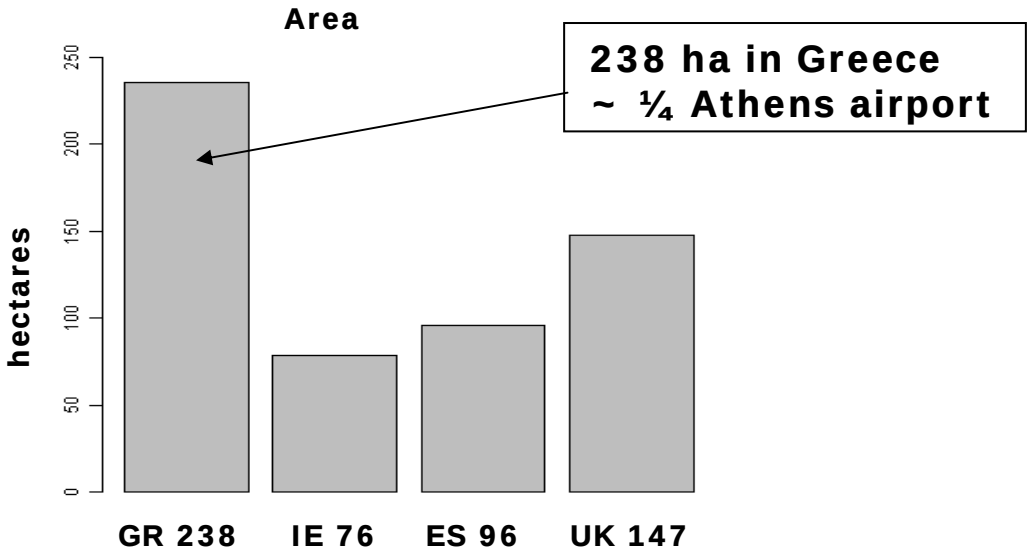
- Ratio of aquaculture jobs total jobs in **some costal areas** reaches up to 4.7%
- On **national** level aquaculture employment only makes 0.016%



Marine space availability: a limiting factor?

Study in GR, IE, ES, UK

Only few hectares occupied



"Finding enough space" vs. "finding the right place"

Main hindering factors for aquaculture development reported in interviews with authorities / stakeholders (ES, PL, IT, DK, FR)

- Competition for space in coastal areas
- Lack of clear priorities for the development of the sector
- Fragmentation of competences for the authorization of new sites
- Environmental concerns

Intensity of productions

- **Capital intensive** fish production
- **Low input** freshwater production
- **Labour intensive** shellfish production
- **High technology** driven full recirculation systems (RAS)

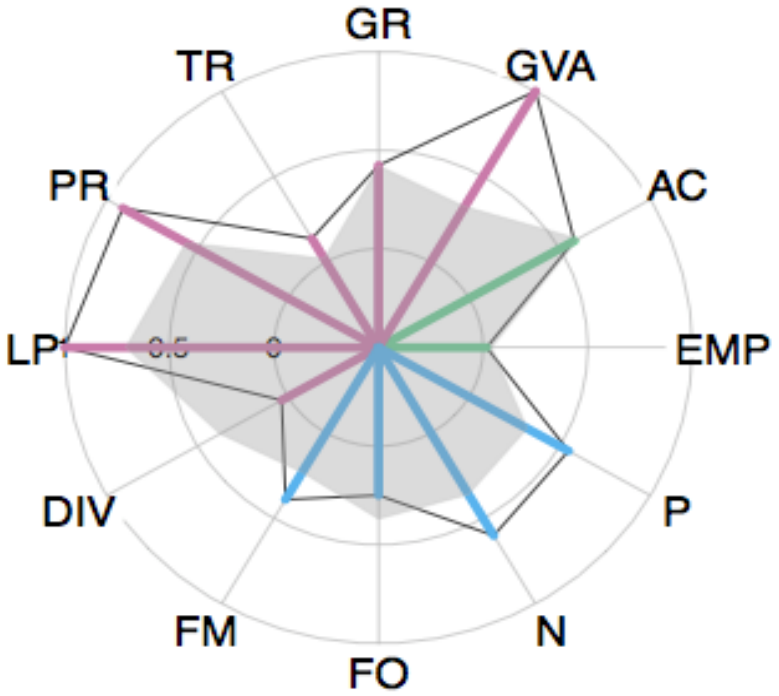
Different characteristics, constrains, opportunities …may require different policy measures.

Capital intensive fish production

e.g. UK – Marine (salmon)

- High input and output
- High labour productivity and profitability

➢ Potential to compete on the globalised market, but facing a series of administrative and environmental constrains which hinder expansion



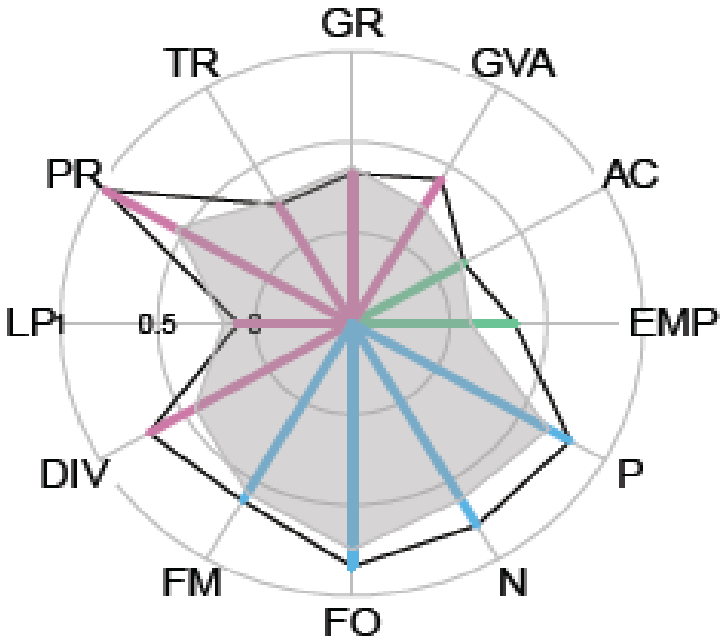
Low input freshwater production

e.g. Poland – Freshwater (~50% carp)

- Low labour productivity
- Serving mainly local markets

➢ Limited demand and strong competition from imported products limiting growth

➢ May support environmental and social aspects

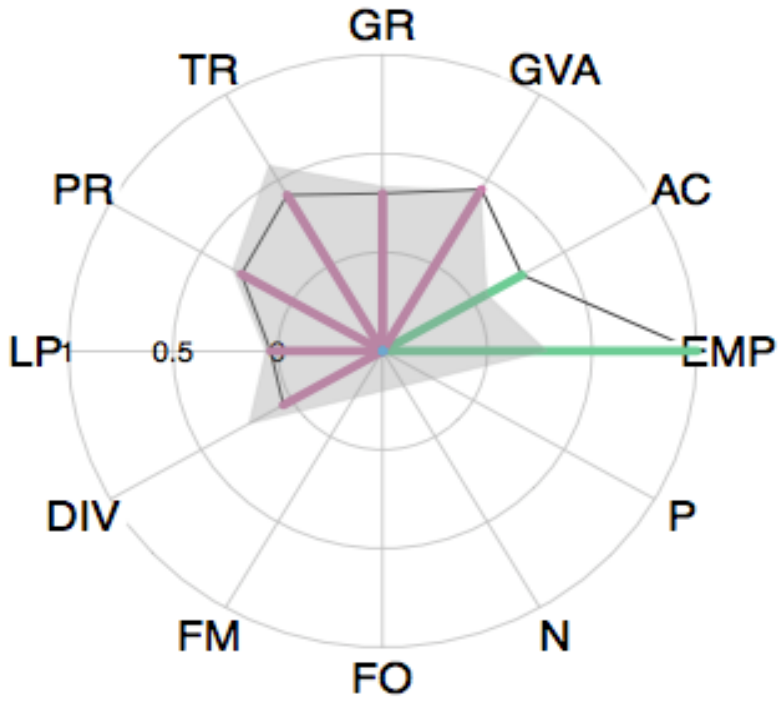


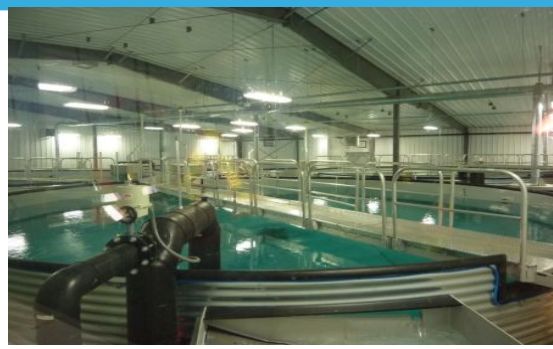
Labour intensive shellfish production

e.g. ES – Shellfish (mussels)

- Low labour productivity
- Minor environmental concerns
- Often contributes to external trade

➢ Although affected by loss of competitiveness, important social dimension (employment, but often part-time or seasonal)



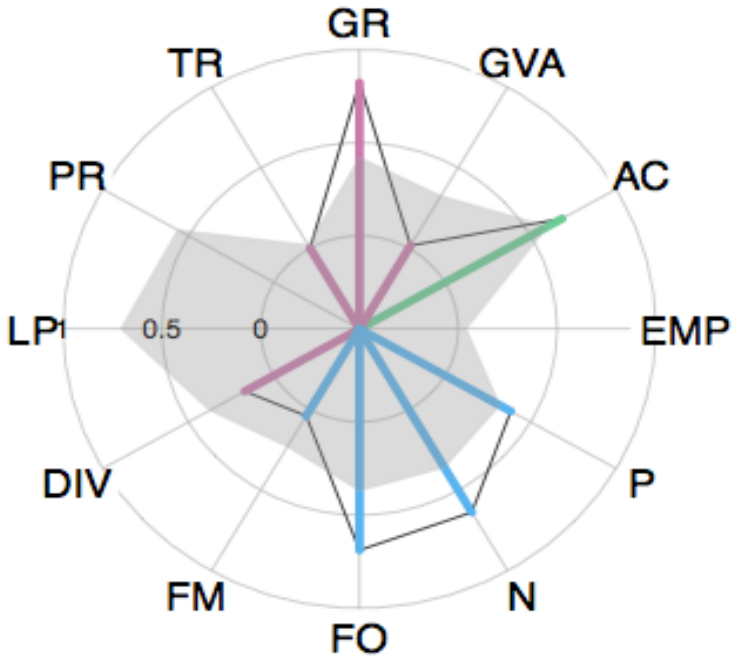


Recirculating Aquaculture Systems

e.g. Netherlands – Marine (turbot, sole)

- High input (investments, management)
- Apart from high energy demand little environmental concerns
- Not competing for space

➢ Profitability prospect only for niche and targeted markets (high-end products)



The complete report will be published by the end of 2012

https://fishreg.jrc.ec.europa.eu/web/aquaculture/home