CONSENSUS –
the ‘fate’ of the indicators

consensus

SUSTAINABLE AQUACULTURE IN EUROPE

Main outputs

- **Trends and indicators for sustainable development**
  - **78 supporting indicators** (under 8 themes) agreed by 120 stakeholders from 16 countries;
  - **25 indicators contributing to Codes of Best Practice** at national or species level;
  - **30 indicators for benchmarking** of the sector, with a potential use in European standards;
  - A new, updated **Code of Conduct** for the European Finfish sector
- **Balanced information for consumers**
  - Tested **consumer messages** on aquaculture sustainability;
  - **Information brochure** targeted at the 40 member organisations of the European Consumers' Organisation (BEUC) and the Euroconsumers network;
  - **Website**, specifically for non expert visitors.

LAND-BASED			MARINE	
				
SEMI-STATIC SYSTEM	**FLOW-THROUGH SYSTEMS**	**RECIRCULATING SYSTEMS**	**COASTAL SHELLFISH SYSTEMS**	**COASTAL FINFISH SYSTEMS**
Carp culture in Central and Eastern European countries. Culture of other freshwater species in extensive systems Wetland resource management and water use *Valliculture* in Italy	Trout culture in most European countries Other freshwater species in intensive systems (catf ish, pike-perch, sturgeon). Freshwater and marine hatcheries. Land-based culture of marine species – turbot.	Freshwater and Marine hatcheries. Land-based culture of freshwater species – catf ish, eel. Land-based culture of marine species – turbot, sole.	Mussel farming (Bott om culture, stake culture, suspended culture). Oyster farming (suspended culture, coastal lagoons Clam culture Seaweed farming	Cage culture of salmonids (salmon and trout). Cage culture of marine species, including sea bass, sea bream, cod and tuna.
INTEGRATED AQUACULTURE				

Special CONSENSUS groups

- Post-harvest operations
- Consumers

desired trends – then indicators

- **Economic viability**
  - Continuous product supply
  - Decrease the proportion of production costs in total operating cost
- **Resource use**
  - Ensure the availability of good quality water
  - Sustainable supply of juveniles
- **Health management**
  - Improve health status of farms
  - Optimise fish welfare
- **Biodiversity**
  - Increased biodiversity around/on farms
  - Minimise the negative impact of aquaculture on wild fish populations

Implementation aspects

- Easy of measurement
- Frequency of measurement
- Responsibility for monitoring/ recording

Farm level – as 'normal practice'
Farm level – new needs
Local or regional level
National level
European level

- Data recording
- Data storage
- Data availability and access

- Current tools/legislation
- New tools/legislation
- New research
- New technology

‘master list’ of indicators

Number of Indicators			
	FISH	**SHELLFISH**	**Total**
Economic viability	12	3	15
Public image	12	3	15
Resource Use	8	2	10
Health management	9	0	9
Environmental standards	5	3	8
Human resources	6	1	7
Sectoral issues	2	4	6
Biodiversity	4	1	5
Packaging & transport	2	1	3
Total	**60**	**18**	**78**

II.8.5 Bio-security 2 (#75)

Desired Status: Minimizing the negative impact of aquaculture on wild fish populations.				
Indicator : a) Number and % of escapees b) Number of disease outbreaks in wild fish c) Amount of farms with parasite monitoring and control programmes				
Env*	€*	Soc*	Level: Pan-Euro/Local/Etc.	Unit (how is it measured):
1	2	3	Local	a) reported escapes b) number of disease outbreaks in wild fish attributed to farming activities c) for species with parasite issues, % of farm sites subject to monitoring and control programmes

* Rank indicator type 1 to 3 (1 is most relevant for this indicator)

Rationale and context: (Why the indicator is an appropriate benchmark or measure? How does this contribute to achieving sustainable development of aquaculture?)

Aquaculture may have both positive (through reduction of exploitation and the artificial reef effect) and negative effects on wild fish populations. Escapees, spreading of diseases and parasites transfer may severely affect wild fish. The question about genetic impact of farmed fish is an important issue for public perception of farmed fish. However, there are indications that increasing domestication of farmed species may make them less fit for survival and reproduction in the wild.

Ease of measurement of the indicator: (How easy is the indicator to measure? How often should the indicator be measured/recorded? Who will be responsible for monitoring (frequency)/recording the indicator?)

(a) and (c) easy to measure; (b) slightly more difficult to obtain validated published reports (but these are extremely scarce in any case).

Effect/overlap/compromise with other indicators: (Showing cumulative positive effects or "trade offs")

N/A.

Trend:

(a) & (b) down, (c) up.

Short term time scale.

Implementation issues:

1) How easy is the indicator to implement at sectorial or farm level?

Very easy for the farmer to implement – he has these data to hand.

2) Does present legislation incorporate this indicator?

Not entirely, but in some cases.

3) Is there research required for effective implementation of this indicator?

For (b) research focus on interaction between aquaculture and wild fish assemblages.

4) Would further investment and/or new technology be required for implementation?

Technology:

(a): development of technical farming concepts minimising potential escapes from cages;

(b) development of effective disease and parasite vaccines and new medications.

5) How will implementation affect production costs?

Reduction of escapes should reduce production costs.

6) Are data for the indicator already available? If so, where can they be retrieved?

The data reside with the farmer, who will have a good record of escapes, parasite control and disease outbreaks. It would have to be retrieved on a farm-by-farm basis.

7) Where are the measured indicator data to be stored or archived?

These data should be held as a public record by the regulator.

8) Other implementation issues.....

- Develop code of practice (or equivalent) for prevention of fish escapes.
- Establishment of a certification program of technical standards for sea cages.

consultation

- **Through industry**
  - Finfish producers (FEAP) - preparation of CoC
  - Shellfish producers (EMPA)
  - Feed manufacturers (FEFAC)
  - Broader aquaculture sector (meetings & events)
- **Through the public**
  - Environmental and conservation NGOs (EBCD)
  - European Parliament hearings
  - Consumer organisations (TEST ACHATS/Euroconsumers)
  - The wider public – “Have your say”

Indicators for Best Practice

- Where the indicator would be **measured** (on farm, local or national and European levels)
- Whether the indicator is an **existing legal requirement**
- Whether the indicator represents **personal/confidential** information
- Whether the indicator can be considered **integral to good practice**

Indicator reduction (25)

Point of Measure

27 indicators on-farm; 1 local; 26 National and 14 European.

Existing legal requirement

11 required legally; 5 partially required and 52 not required.

Personal or Confidential Information

7 indicators – each related to financial considerations

Integral to Good Practice

43 indicators reflect good practice

Reduced to 25 when overlapping indicators were consolidated

On-farm measured good practice related to 17 indicators

Indicators for benchmarks/standards

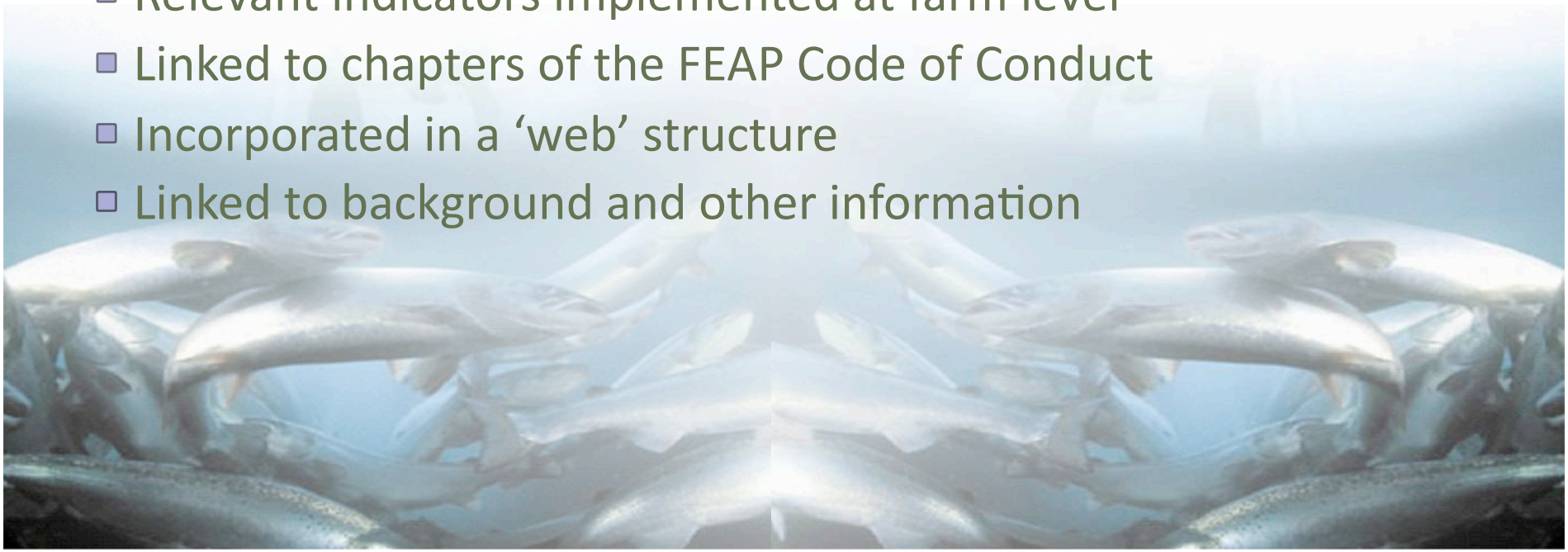
- Which indicators reflect **effective components of a European standard for the measurement of actions** relevant to responsibility/sustainability within European fish farming?
- How are selected indicators measured, **on a repetitive and a comparative basis**, and transformation of these into protocols for adoption?
- What are the **measurable benchmark positions** from which certifying agencies are able to make unequivocal judgement?

indicator reduction (30)

- Biodiversity (3)
  - species index, polyculture, escapes
- Economic viability (5)
  - diversification, investments
- Environmental standards (2)
  - site selection, monitoring
- Governance (3)
  - BEP, best use of sites
- Sectoral issues (1)
  - reliable sector data
- Health & welfare (4)
  - fish welfare index
- Human resources (3)
  - age, gender, education, training
- Public image (5)
  - promotion, visitors, certification progammes, demand
- Resource use (4)
  - feeds, energy, juvenile supply

FEAP Code of Conduct

- Relevant indicators implemented at farm level
- Linked to chapters of the FEAP Code of Conduct
- Incorporated in a ‘web’ structure
- Linked to background and other information



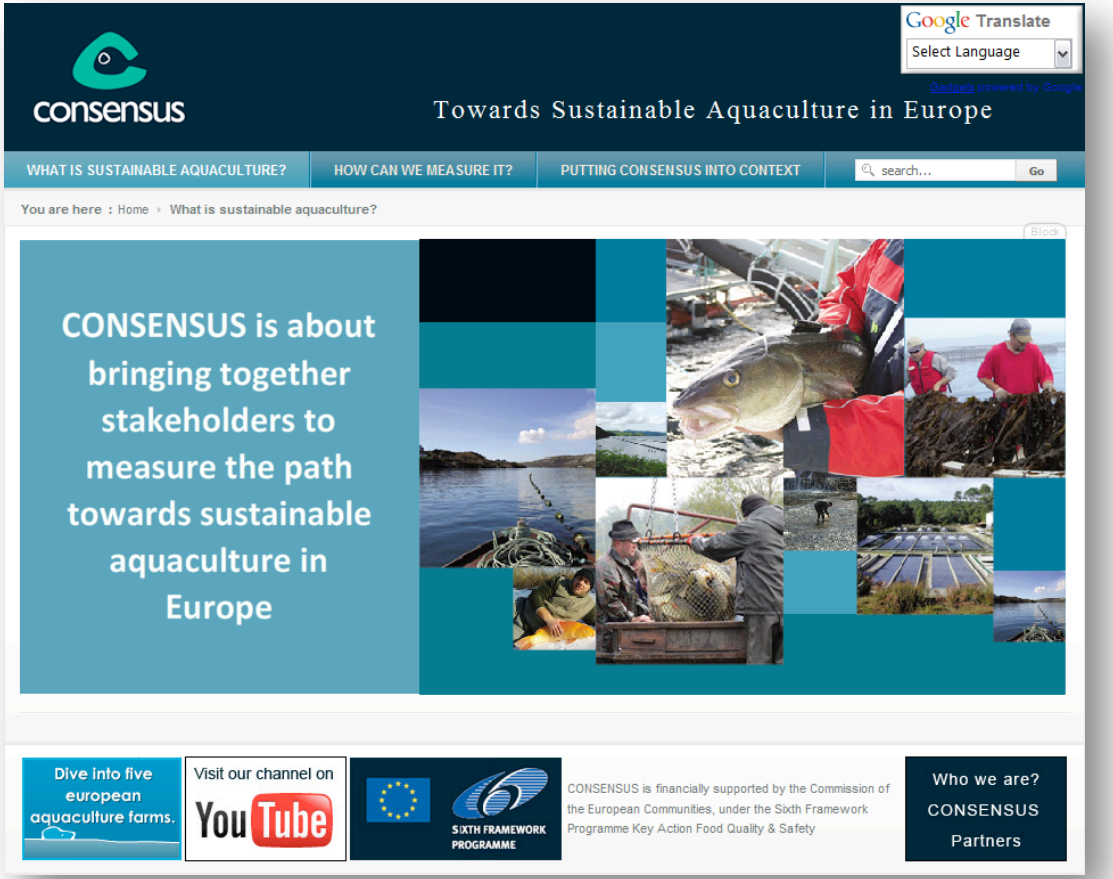
See www.euraquaculture.info

Sharing…

Guidelines for Aquaculture Certification

Integrated Farm Assurance Standard

Aquaculture Dialogues



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