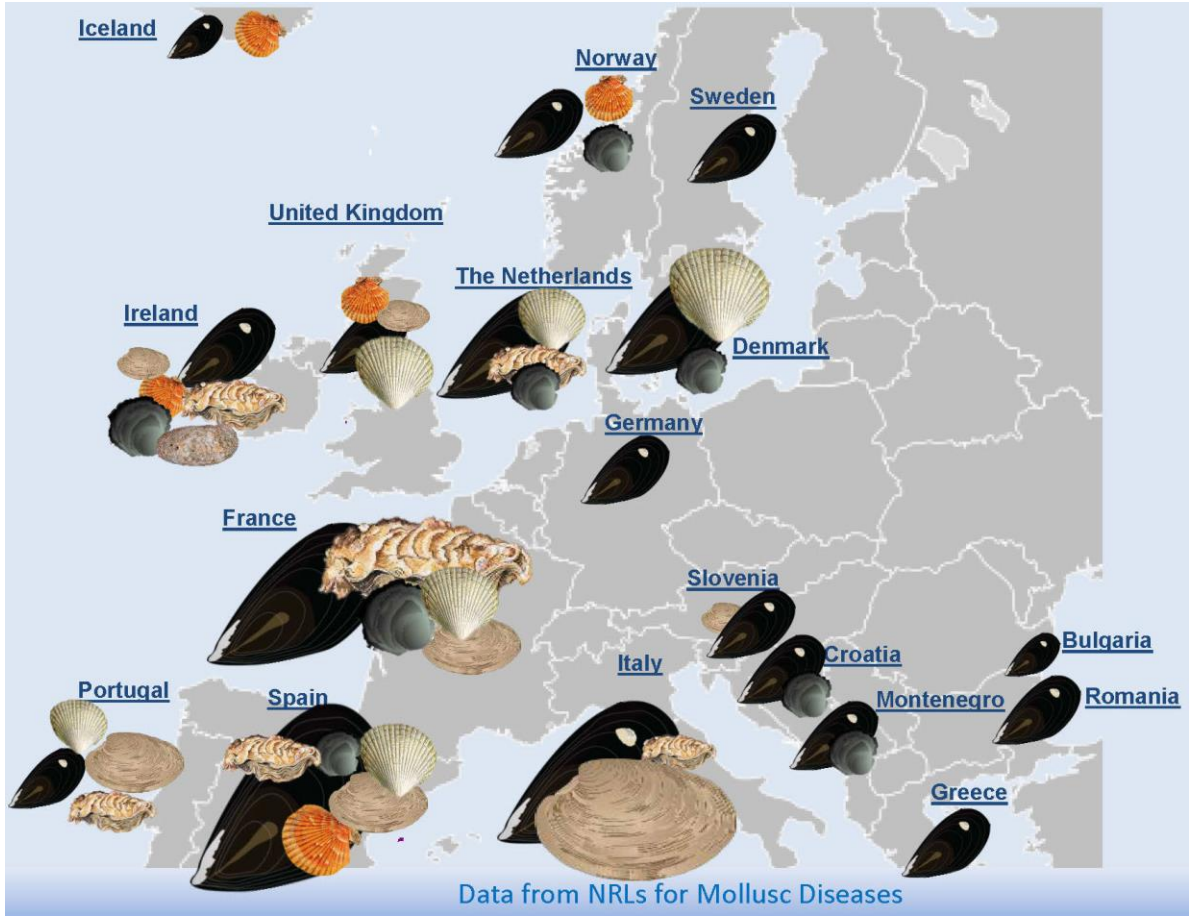
Elaborating a manual for disease management and biosecurity

VIVALDI

Preventing and mitigating farmed bivalve diseases


VIVALDI
Preventing and mitigating farmed bivalve diseases

European mollusc production



Diversity of practices
No barriers between wild and farmed animals

http://www.huitre-en-ligne.com/speciales-claire-marennes-oleron-sure.html

https://www.grandsite-capsizquyrchel.com/index.php?id=35

http://www.ouest-france.fr/bretagne/saint-malo-35400/les-tresors-de-la-baie-se-decouvrent-aux-grandes-marees-673863

http://www.photoscalvados.com/v/Agriculture/Peche/Peche+St+Jacques+14.jpg.html

Hatcheries/nurseries

High density
Numerous movements from the hatcheries/nurseries

Closed/semi-closed establishments
High level of awareness

Importance of animal movements

- for aquaculture purposes
  - From hatcheries/nurseries
  - Between farming areas
  - Between natural beds and farms

- for consumption purposes
  - Live molluscs are generally depurated and kept in water before being eaten

Problem of associated species?

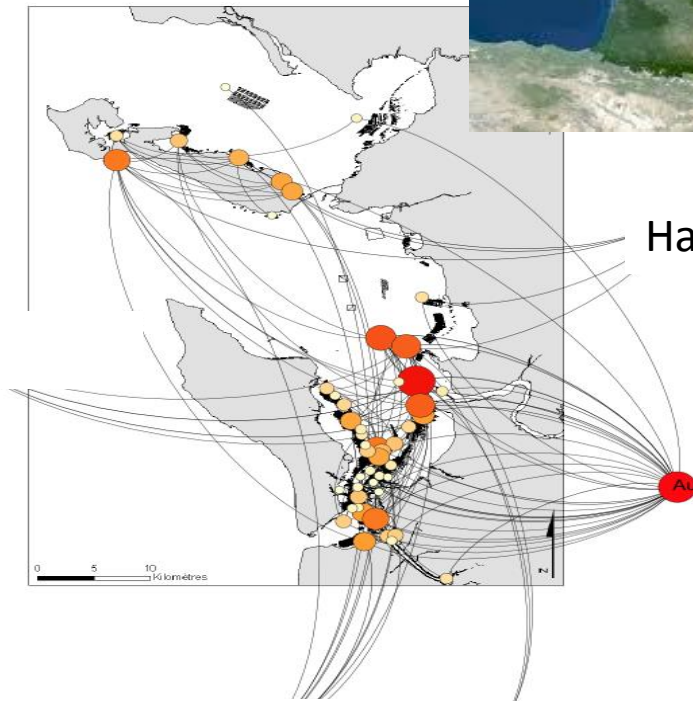
Efficiency of water treatment against mollusc pathogens?

Importance of transfers

An oyster, Crassostrea gigas, can moved up to 9 times during its production cycle

Exemple: movements in spring
Half of the movements concerns spat

(Data: Coralie Lupo -clupo@ifremer.fr)



Challenges

Lack of traceability: difficulty to implement control measures

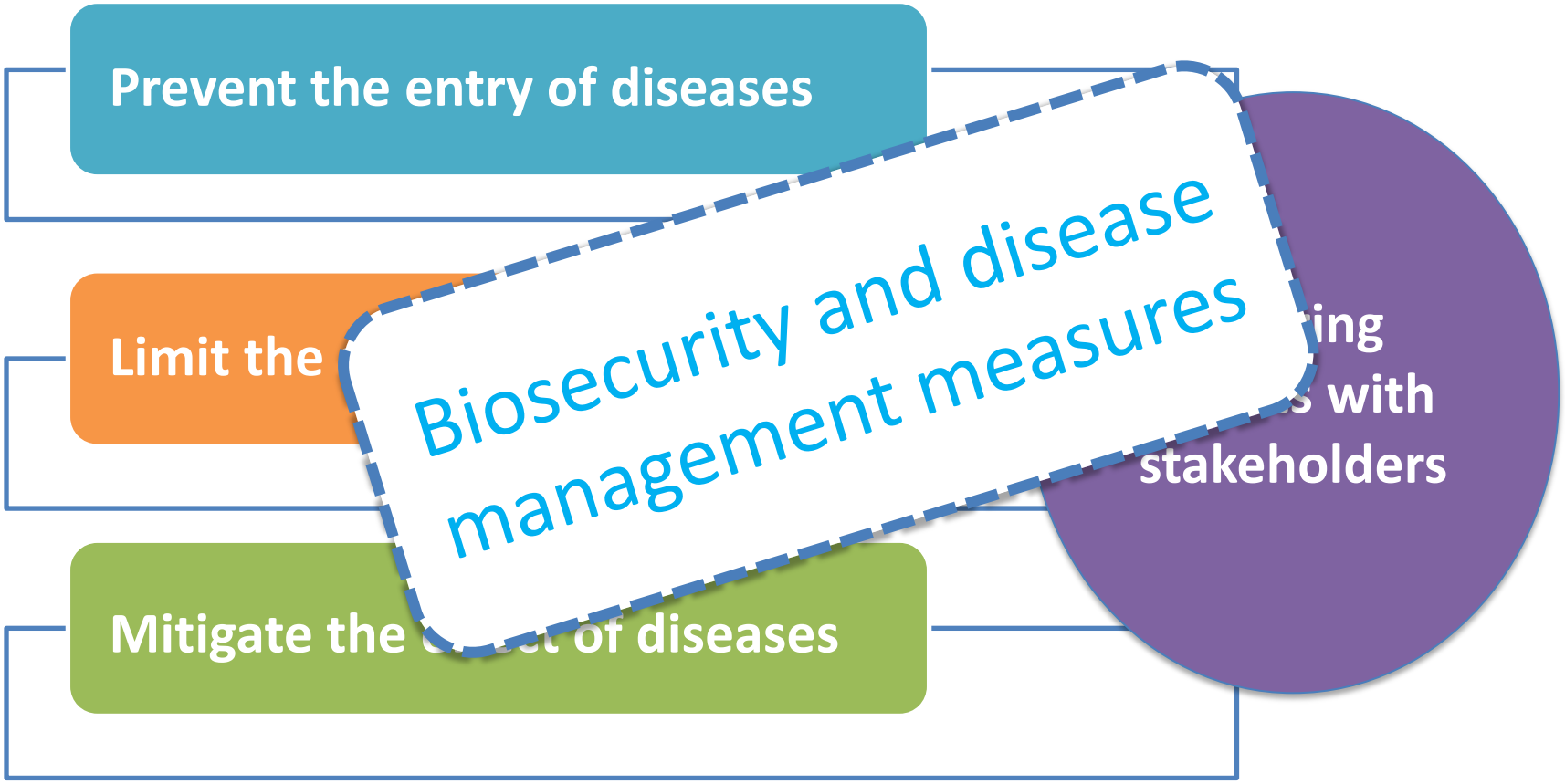
In the field: treatment /disinfection not applicable

No barriers/walls: open access to pathogens

Molluscs act as carrier for many pathogens: eradication difficult/impossible

Regulation poorly implemented: evaluate perception

Control of mollusc diseases



International framework

World Organisation for Animal Health

Chapter on biosecurity for aquaculture establishments

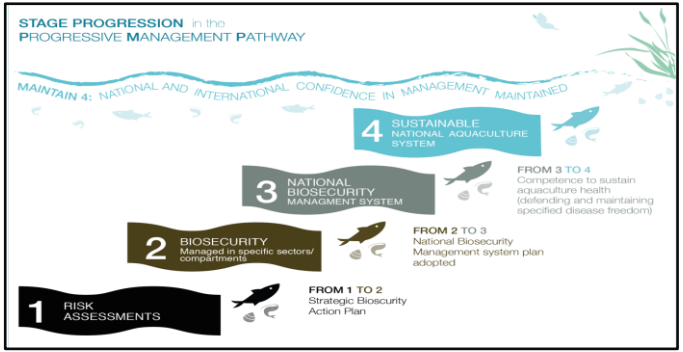
- description of establishemnts
- transmission pathways and associated risks
- Risk analysis up including risk management

Biosecurity plan

- Guidelines for Animal disease control

Progressive Management Pathway for Improving Aquaculture Biosecurity

4 stages Risk-based Collaborative Progressive



European framework

REGULATION (EU) 2016/429 « Animal Health Law »

biosecurity' means the sum of management and physical measures designed to reduce the risk of the introduction, development and spread of diseases to, from and within: (a) an animal population, or (b) an establishment, zone, compartment, means of transport or any other facilities, premises or location;

……

Operators take biosecurity measures appropriate for :

- (i) the species and categories of kept animals and products;
- (ii) the type of production;
- (iii) the risks involved,

taking into account: — geographical location and climatic conditions; and — local circumstances and practices;

National framework

UK:

Shellfish biosecurity measures plan: guidance and template for shellfish producers

Shellfish_biosecurity_measures_plan.pdf

Ireland:

- Good practice guidelines for the 2017 season
- **Good practice guidelines for the 2017 Season FINAL VERSION.docx**

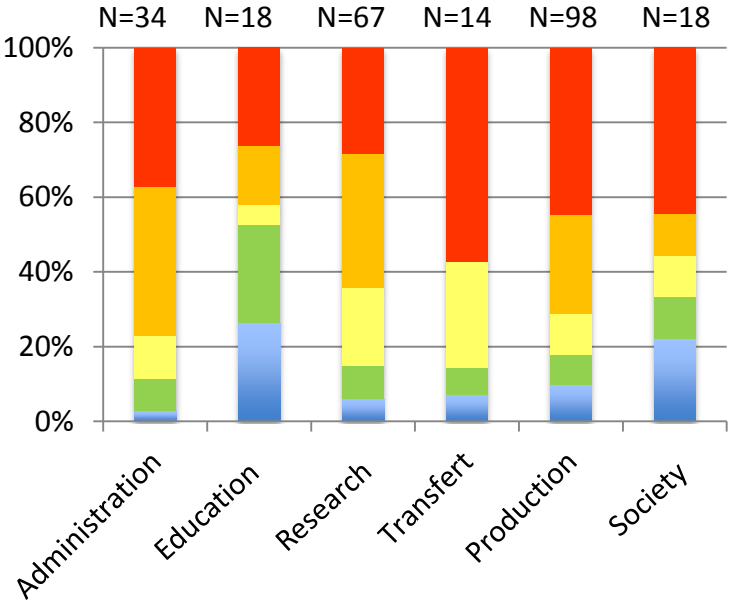
Spain:

- Books on aquaculture
  - Libro blanco de la acuicultura (2001)
  - Guia de acuiltura (2012)
- Guia par la gestion sanitaria en acuicultura
  - Epizootiología y medidas de prevención y control
- Guia de autocontrol: virus herpes de ostreidos
  - GuiaHerpemol.pdf

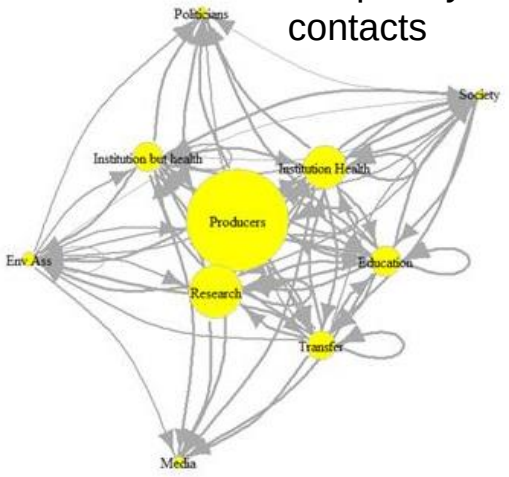
Who cares about shellfish diseases?

Main categories of stakeholders:

- Politicians
- Public institutions
- Education and training
- Research
- Knowledge transfer & development
- Shellfish industry and related sectors
- Society, NGO, media



Frequency of contacts



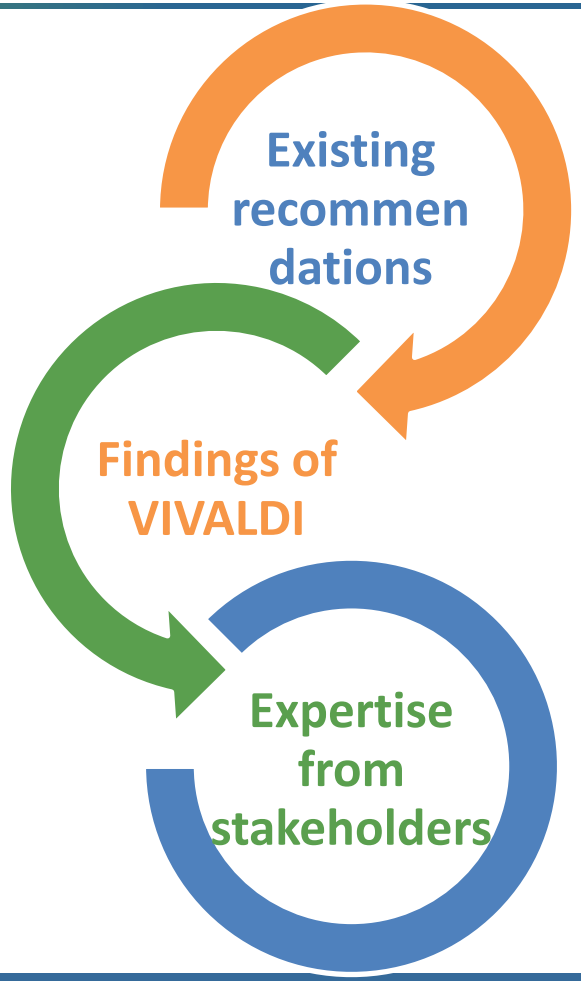
Stakeholders' interest in mollusc diseases

How can we work all together?

Approach

Co construction process

Producers, hatcheries, decision-makers and scientists **from different countries**



Manual for disease management and biosecurity

for stakeholders

Approach

Manual edition in 2020

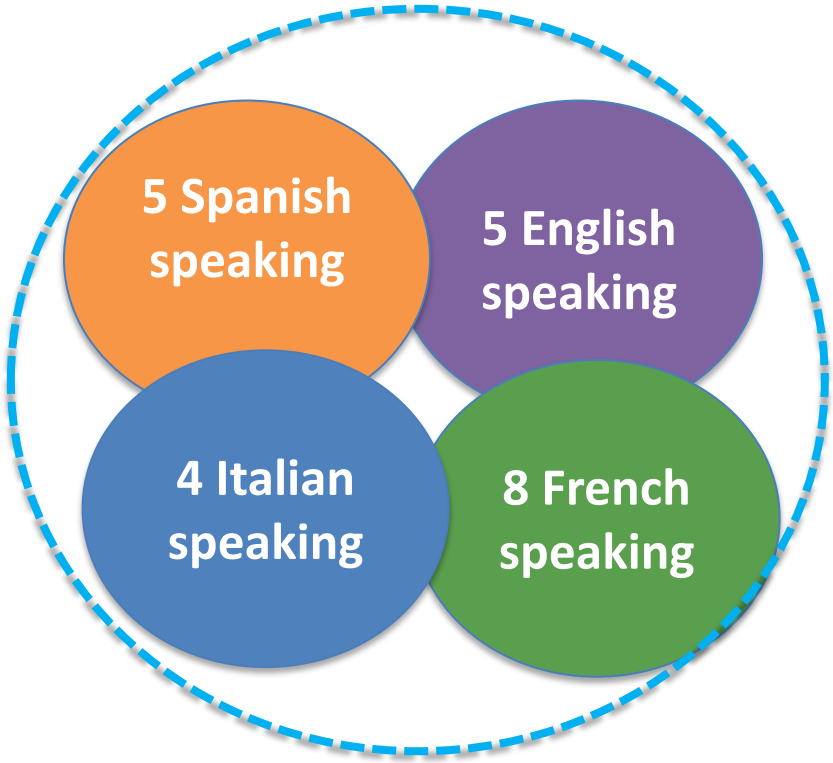
Listing recommendations

Description Grading

Validation Towards the Manual

Working group : producers; competent authorities; scientists

9 producers
6 competent authorities
7 scientits



Discuss listed recommendations
Identify additional ones
Comment them:
- -Grade
- -Expected benefits
- -Limits
- -Other comments

Main categories of recommendations

1. Identifying disease-free zones
2. Act on animal movements
3. Review monitoring and evaluation processes / Improve mortality reporting
4. Selection of animals
5. Treat the animals directly
6. Treating waters
7. Changing farming practices and structures
8. Elaborating local and technical recommendations manuals based on geographic and species specificities
9. Methodology transfer: communication, coordination, information and training

43 specific recommendations

Explaining recommendations

Title of recommendation	
Description (modalities of implementation, stakeholders involved or/and impacted etc.)	
Expected benefits (objective of the measure)	
Main limits (cost, technical feasibility…)	
Competences/People whose expertise is requested for implementing this recommendation	☐ Research ☐ Farmers ☐ Research & Development (technological development) ☐ Diagnostics laboratories ☐ Competent authorities/administration ☐ Hatcheries ☐ Training institutions ☐ Other *Please specify*
Other comments	

Grading recommendations

Color code	Score	Nb of recommendations
	12-10	8
	9-7	14
	6-4	9
	3-1	6
	NG	8

NG= Non yet graded

Grading recommendations

12	2E-Avoid movement of bivalves during mortality events
12	6A-Treating inflow water
12	9C-Deliver to competent authorities bivalves at the first signs of suffering or mobidity = improve mortality reporting
11	8I-Establish a cultivation calendar
11	9B-inform stakeholders about disease status and risk
10	2B-Improve surveillance based on spread models (Implementation of hydrodynamic models in shelfish growing areas)
10	4A-Use spat selected on disease resistance
9	1A-Determining zone status by testing the disease at source
9	2A-Establish a permit for translocation (risk-based decision process)
9	4B-Use only broodstock from populations that are documented free from diseases
9	6C-Within the facility, to test the efficiency of water treatment devices in hatcheries as prevention tools
9	8G-Adapt the techniques of shellfish cultivation (e.g. alternatives to bags and trestles)
8	2C-Restricting movements based on the detection of pathogens, for example using passive sensors
8	2D-Prohibit movement of bivalves between disease-free and infected zones
8	4C-Use broodstock with the highest genetic diversity
8	7B-Develop local hatcheries
8	8B-Take temperature into account when handling animals
8	8H-Stocking regimes (density, location…)
8	8J-Use of cold water tanks / refrigeration for storage post grading and transport respectively
8	9A-Collaborate with competent authorities and researchers to facilitate the testing of new solutions
7	5A-Stimulating farmed bivalves to improve their resistance to diseases.
7	7A-Managing bivalve stocks based on the monitoring of pathogen dynamics

Next steps

Finalising recommendation description and grading

Identify information needed for the manual

Agree on the structure and format of the manual

Challenges

Different bivalve species
Different stakeholders
Different countries
Different industry organisation
Different surveillance organisation
Different languages

Harmonisation without loosing specificities
Two main targets:
- producers including hatcheries
- competent authorities/policy makers


Thanks for your attention

This project has received funding from the European Union's Horizon 2020 Research and innovation programme under grant agreement N° 678589

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