

# Fish health and welfare

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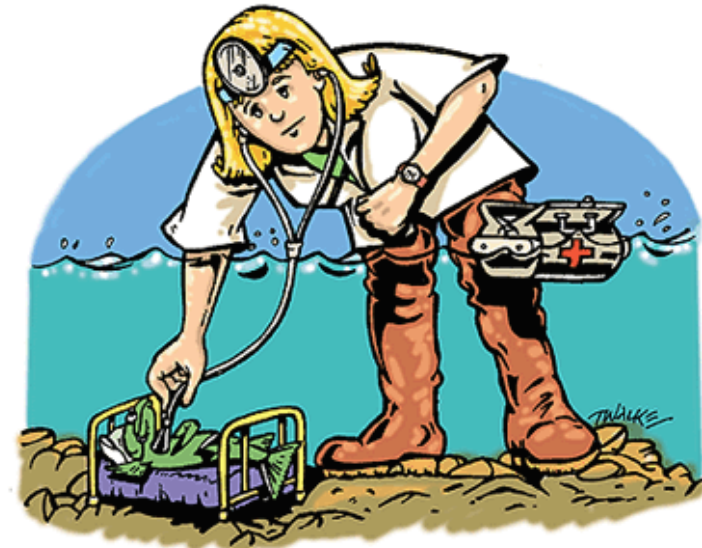
23 March 2014

Aquaponics Conference - Sólheimar



# Overview of presentation

- Where do I come from?
- Aquaculture in Iceland
  - Production
  - Legal environment, official health surveillance
- Principles of fish health
- Management
- Risk factors
- Welfare
- Diseases of aquaponic fish



# The Authority

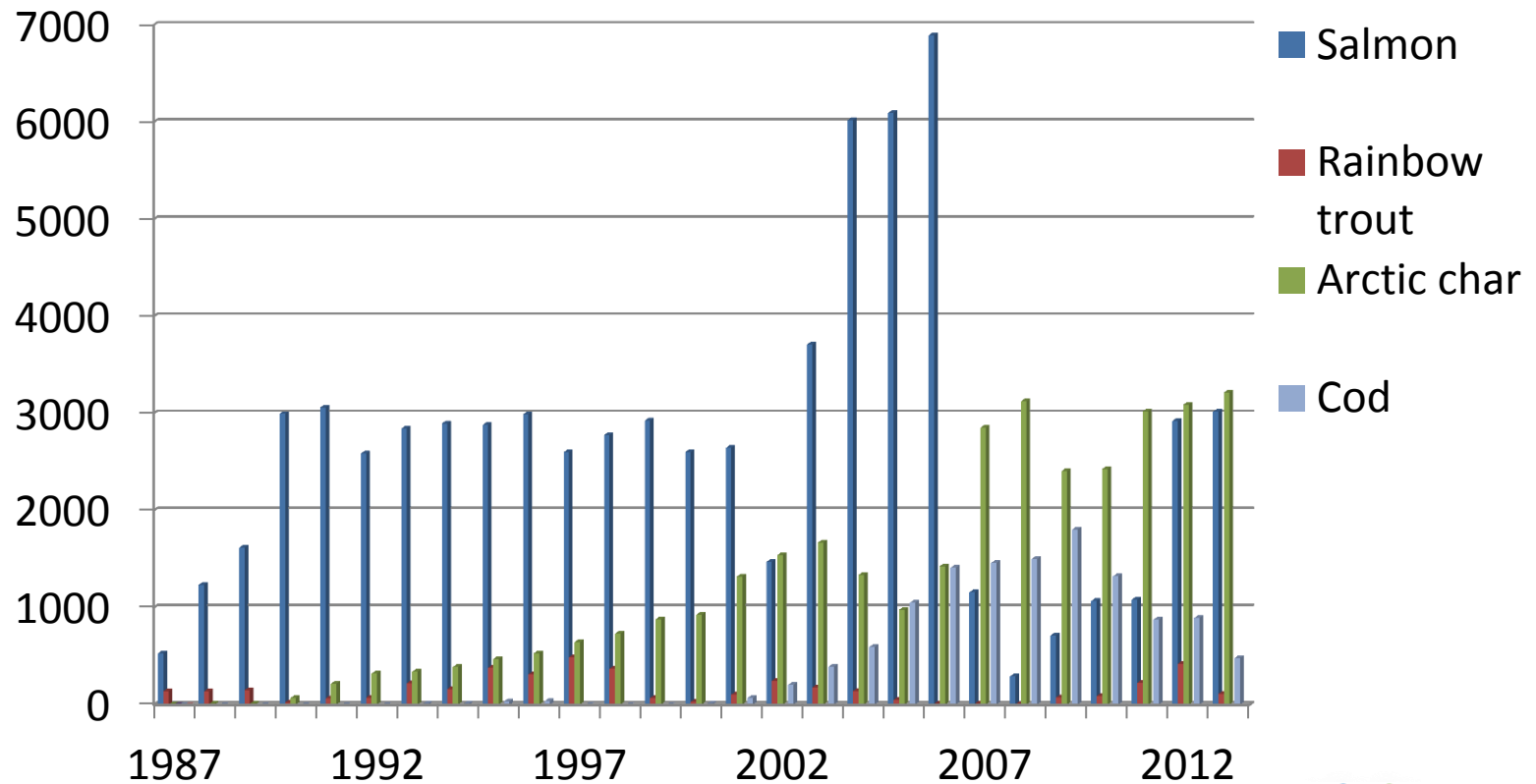


- Located in Selfoss, S-Iceland
- Food and feed safety, animal health and welfare
  - Department of animal health and welfare – CVO
  - Veterinary officers for poultry, ruminants, pigs, horses, fish, fur animals, pets, epidemiology and zoonoses..
- Two vet. officers for fish health; Gísli Jónsson (1991) and me (2013)



# Aquaculture in Iceland

- Production in Icelandic Aquaculture 1987-2013



# Breakdown of production numbers (2013)

85% of the total production (6887 tn) comes from 10 farms

70% of the total production comes from 5 farms

**47%** Arctic Char  
(*Salvelinus alpinus*)  
(land-based farming)

**44%** Atlantic Salmon

**<10%**  
Rainbow Trout

Cod

Senegal Sole (new! 2013)

Blue Mussels  
(fluctuating production)

**0,1%**  
Tilapia

# Legal environment

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- Iceland is a part of the European Economic Area (EEA) consisting of the EU, Norway, Iceland and Liechtenstein
- Ergo; we are part of the internal market.
- Fish health regulations include:
  - Council directive 2006/88 EC (IS: 1254/2008) – Aquaculture health requirements..**prevention** and **control** of diseases in aq. animals..
  - National regulations

# Official health surveillance

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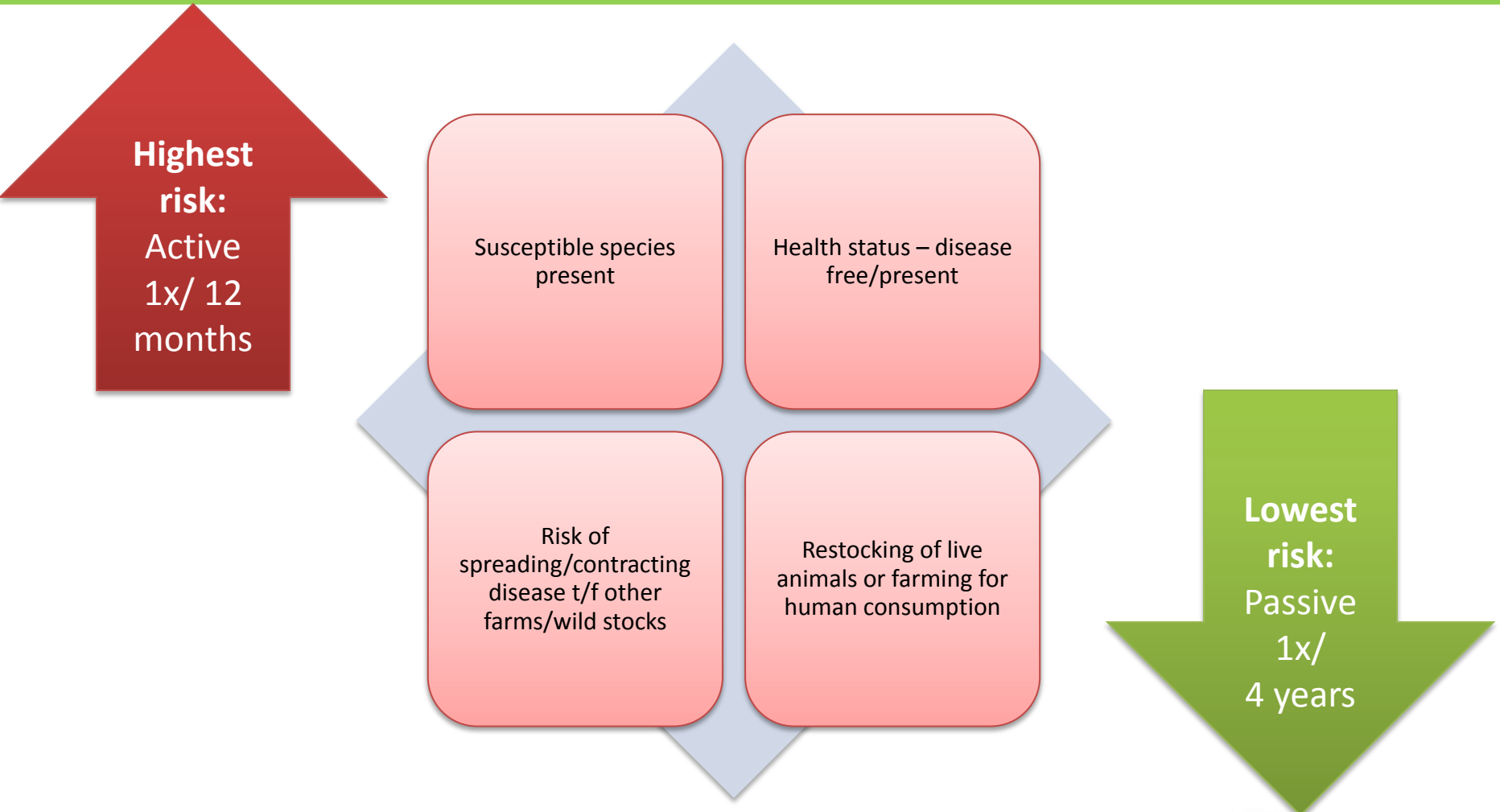
In accordance with 2006/88/EC and national reg.

Surveillance and inspection frequency based on



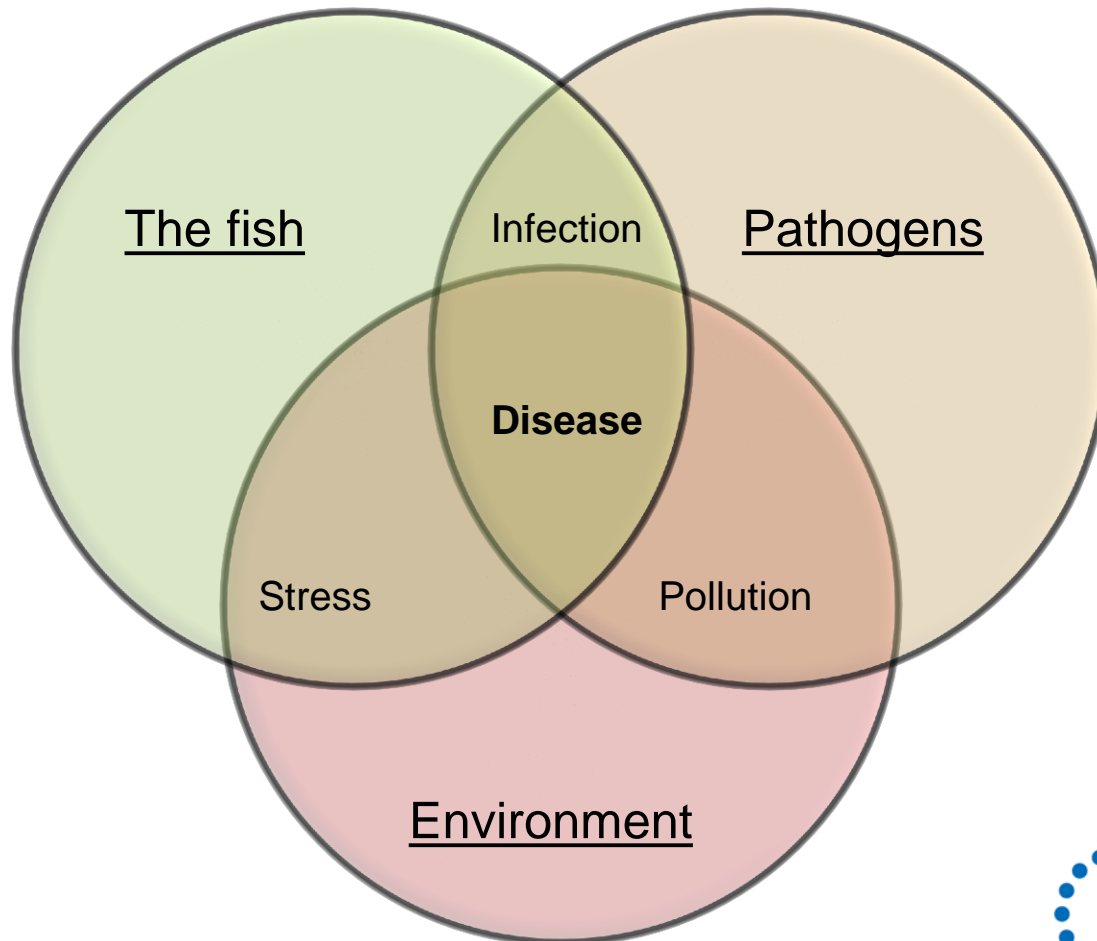
**Risk assessment**

# Risk assessment factors





# Fish health – Principles



# Corner stones of fish health

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- **Management** (Best practice, SOP)
- **Disease surveillance and sampling**
- **Biosecurity**



# Management

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- Health planning  
*(Contingency plan, sampling plan etc.)*
- Decisions in management that concern the health  
*(New feed? Increase density of fish? Buying new stock?)*
- Education of staff
- Cooperation with authorities
- Research and development

# Surveillance

- Inspection of fish and environment on a regular basis  
*Sampling every group/generation, logging environment parameters*
- Official surveillance  
*Risk assessment status*  
*movement documentation*



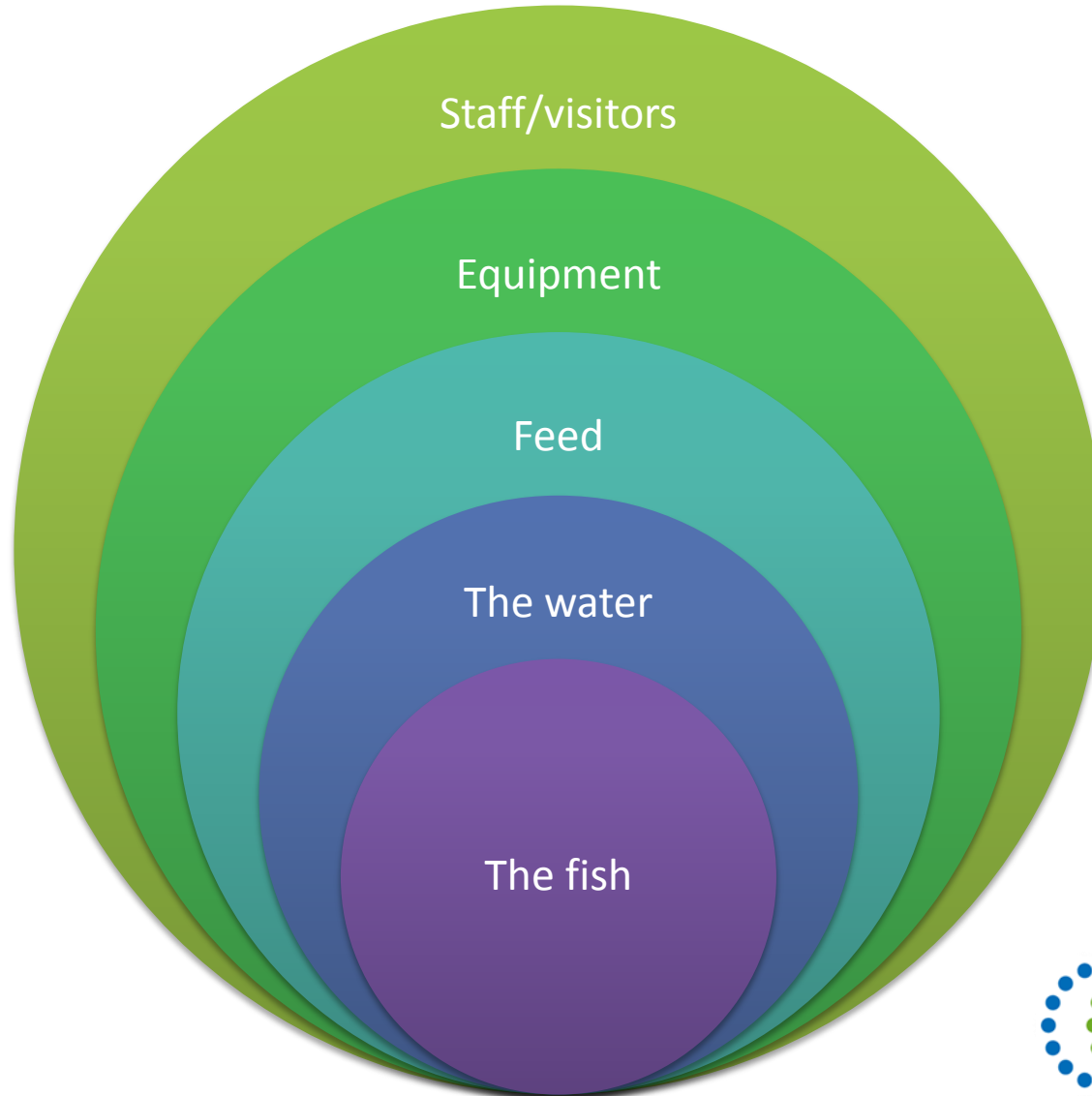
"Ever get the feeling that we're being watched??"

# Biosecurity

- Internal security
  - Disinfection protocols
  - Separation of groups
- External security
  - Safety of new stock
  - Water source
  - Feed
  - Personal traffic records



# Risk factors: Need analysis for them to be managed in the best possible way



# Welfare

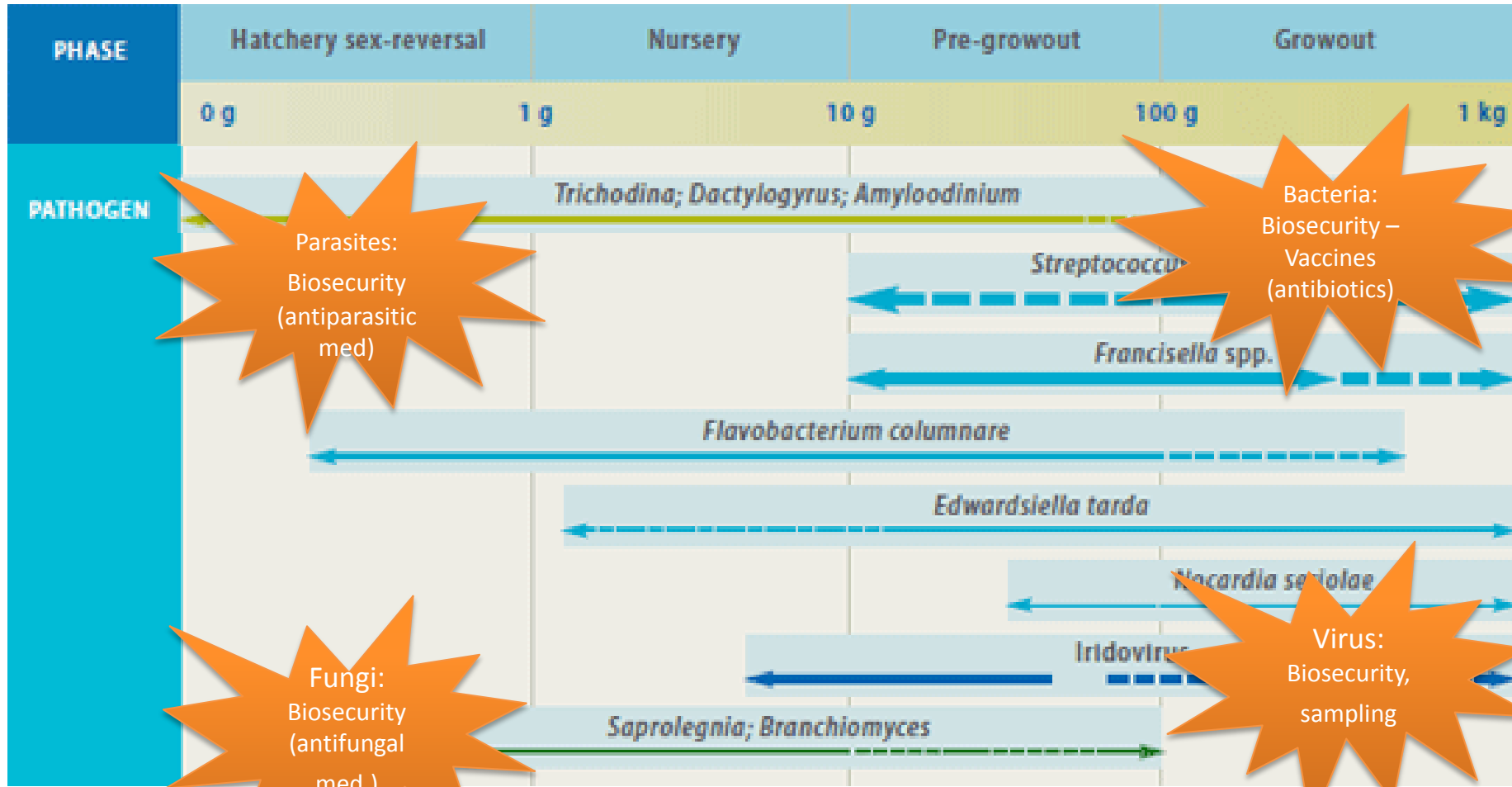
- How well is the fish coping with the environment in which it lives?



- The ideal state of the animal; “The five freedoms”
  - From hunger and thirst
  - From discomfort
  - From pain, injury or disease
  - From fear and distress
  - To express normal behaviour

*The Brambell Committee 1965*

# Aquaponic fish diseases (Tilapia)





*Takk fyrir!*

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*www.mast.is*

