



Nederlandse Voedsel- en
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*Ministerie van Landbouw,
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Risk assessment of the fisheries supply chain

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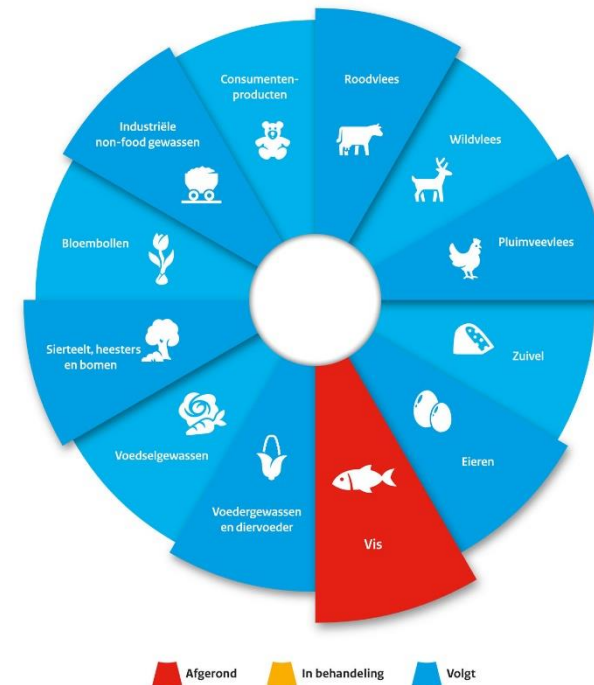
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Scope



Advice on risks for man, animal and nature in the fish, crustaceans and shellfish supply chain

- > **Animal welfare & animal health**
- > Nature (invasive alien species)
- > **Food safety**



Animal welfare and animal health



- Develop methods and policy to assess and mitigate animal welfare risks for the **billions** of fish, crustaceans and shellfish that are being caught and farmed for consumption
- Stimulate research to better control animal welfare risks on farm
- Animal welfare indicators needed for all farming system/catch method/species
- Develop better catch, harvest, conservation, transport and killing methods to reduce animal welfare consequences, in particular for
 - fish and crustaceans
 - reducing the time between unsedated handling and killing
- Develop monitoring and control system for new and emerging animal diseases
 - in particular for fish and crustaceans
 - use this system also for chemical and microbiological contamination for wild catch

Food safety (1)



- Origin of species:
 - Study relationship between level of contamination, animal species and location
 - Increase monitoring on PFAS, dioxins, cadmium, methylmercury and arsenic compounds in NL waters as well as in European and international waters
 - and thus derive insight in high risk areas
- Dietary advices, including an upper limit for consumption, in particular for pregnant women and for children
- Oversight on cooling and hygiene all along the supply chain
- Oversight in raw products & processing companies (*Listeria*)
- Data registration and exchange in all links of the supply chain

Food safety (2)



- Monitoring new and emerging marine biotoxins, in particular on *Vibrio spp.*, due to global warming
- Monitoring antimicrobial resistance in aquaculture fish from Asia, together with European partners; which specific products / regions result in increased AMR?
- Monitor food safety related to nano and microplastics; ask EFSA for an opinion
- Ask the Dutch Nutrition Centre
 - to inform consumers on the microbiological risks of consumption of sushi, and other raw or insufficient cooking of fish, crustaceans and shellfish
 - to intensify informing anglers on the microbiological or chemical risks of consuming fish, crustaceans and shellfish from contaminated water
- Intensify research on prevalence and burden of disease caused by *Vibrio spp.*

Food safety (3) microorganisms



- Contaminations in the environment
 - *Clostridium botulinum*, *Vibrio* spp., *Anisakis*, Chinese liver fluke (*Clonorchis sinensis*)
- Sewage water
 - Norovirus, hepatitis A in raw fish, mussels/oysters, shrimp
- Post-contamination / insufficient hygiene
 - *Listeria monocytogenes*, *Salmonella* spp, norovirus, hepatitis A-virus
- Insufficient cooling or freezing
 - histamine
 - *Anisakis*, Chinese liver fluke (*Clonorchis senensis*)



