

# Non-native aquatic animals introductions have driven disease emergence in Europe

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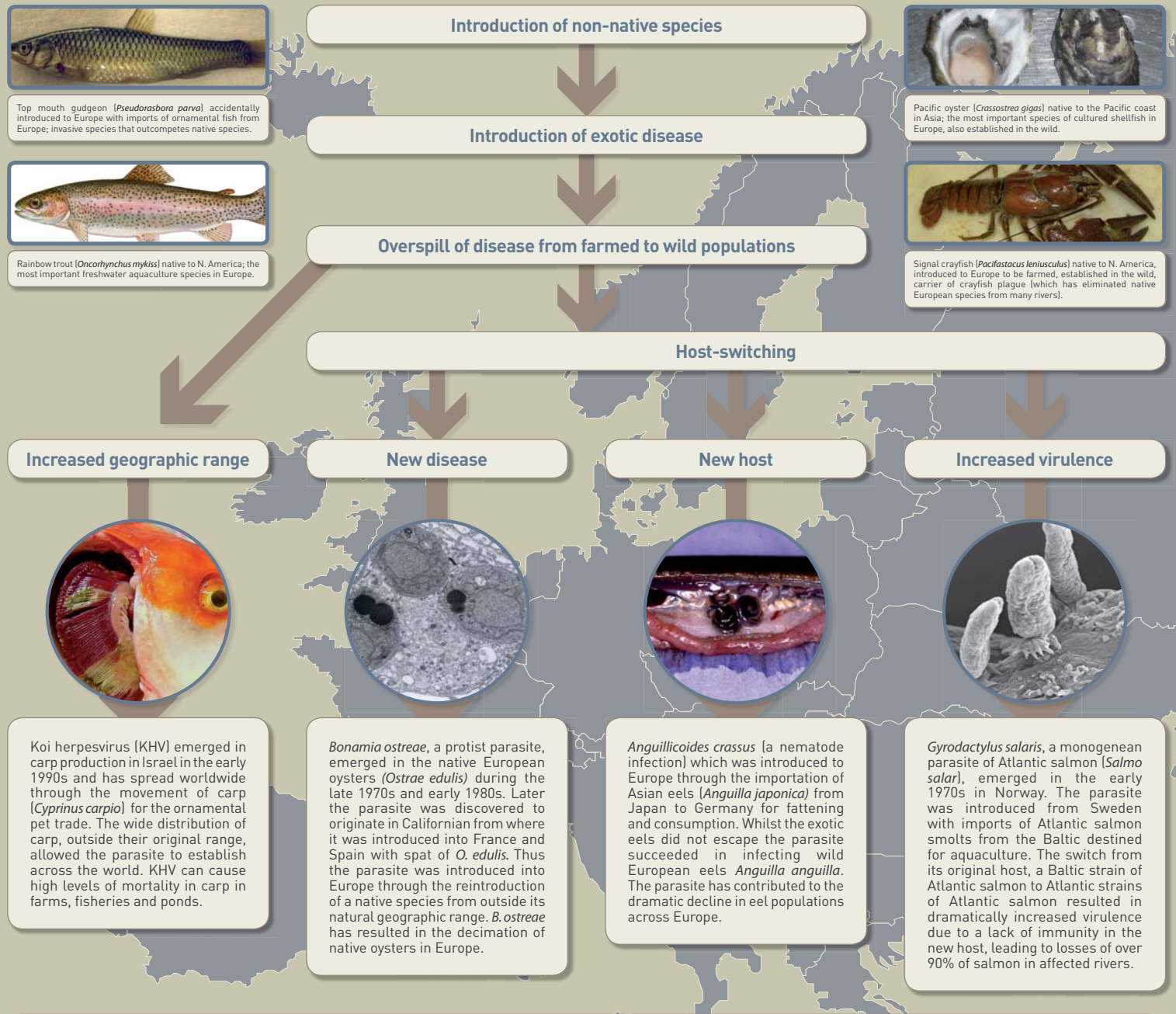
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## Introduction

A large number of aquatic animal species have been translocated outside of their natural geographic ranges over many years. Aquaculture and trade in ornamental species have been the main drivers; accidental introductions have also occurred. Non-native species (NNS) introductions have severely damaged many aquatic ecosystems through predation, competition for food, introduction of disease etc.. Emerging diseases may

be new diseases but are more often known pathogens in a new host, occurring in a new geographical area or presenting with increased virulence. Introductions of NNS to Europe illustrate how translocation of a species outside of its natural geographic range drives all types of emerging diseases.



## Conclusions

- The most severe disease events in wild European aquatic animal population in recent years are attributable to the introduction of NNS
- The introduction of a non-native aquatic animal allows their disease agents to switch to new naïve hosts
- Parasites and pathogens with low host specificity are most likely to emerge
- Impact of the disease in the new host is often severe due to a lack of innate immunity
- Current *ex-ante* import risk assessment methods will not identify emerging diseases hazards
- Alternative approaches to assessing disease risks associated with the introduction of NNS and generic risk mitigation measures (e.g. restriction on the sources and number of species traded, movement of eggs in the place of adults) are needed