

Introduction

Import risk analysis (IRA) is the scientific evaluation of the risk of importing exotic diseases and their potential consequences.

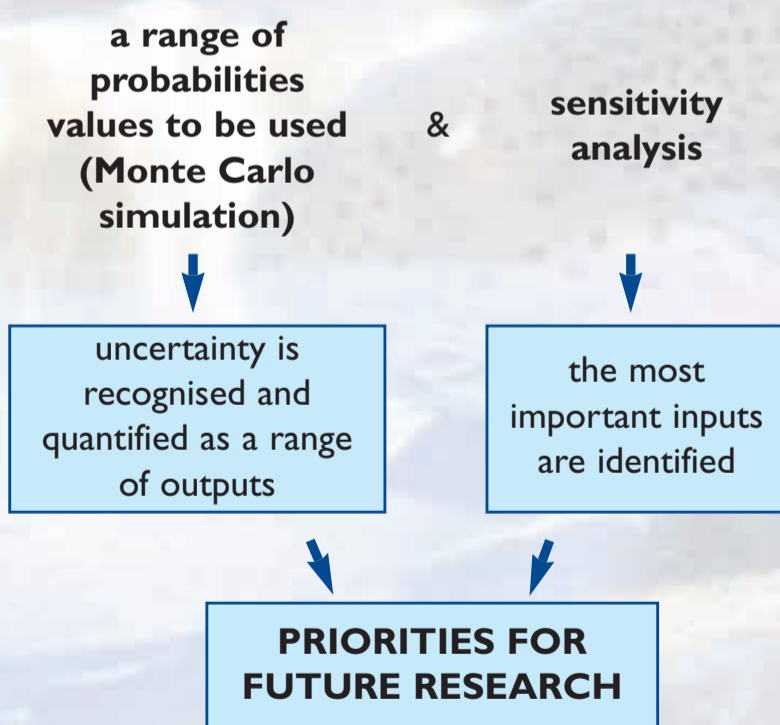
The use of IRA in the field of animal health has grown significantly in recent years. This has partly been due to the requirements of the Sanitary and Phytosanitary (SPS) Agreement of the World Trade Organisation (WTO), and the powerful simulation computer software now available.

Handling uncertainty

The data required for quantitative IRA for aquatic diseases is frequently sparse

BUT

- expert opinion can be used
- the available simulation software (e.g. @Risk, Palisade) allows:



The results of future research will generate data for more accurate risk analyses, thus **RISK ANALYSIS** is an **ITERATIVE PROCESS**

&

“...we learn through doing” Aristotle.

Import Risk Analysis has five stages

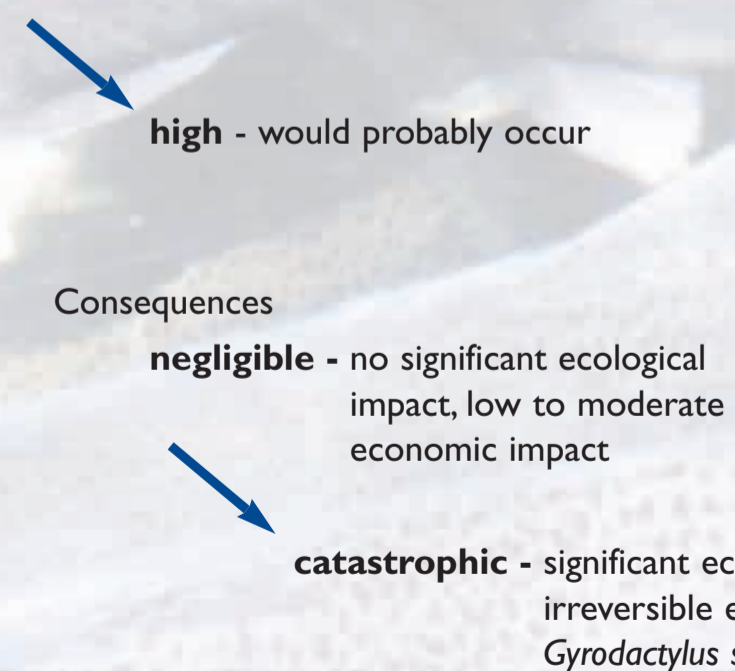
- 1. hazard identification** - identification of the major exotic aquatic diseases
- 2. release assessment** - description of pathways necessary for introduction
- 3. exposure assessment** - description of pathways necessary for the exposure of host aquatic species to the introduced exotic pathogen
- 4. consequence assessment** - identification of the consequences of disease introduction and establishment
- 5. risk management** - policies to reduce likelihood of introduction and mitigate the consequences

Prioritising the hazards

A risk evaluation matrix (Kahn *et al.*, (1999)) can be used to produce a semi-quantitative rapid risk analysis to objectively **prioritise** exotic diseases (Figure 1.).

Each cell of the table represents a combination of probability and consequences of introduction and establishment when no import restrictions are in place.

Probability of introduction and establishment **negligible** - so small it can be ignored



Acknowledgements

This work was funded by DEFRA.

The assistance of Professor Barry Hill in the production of this poster is gratefully acknowledged.

Why do Import Risk Analysis?

IRA is

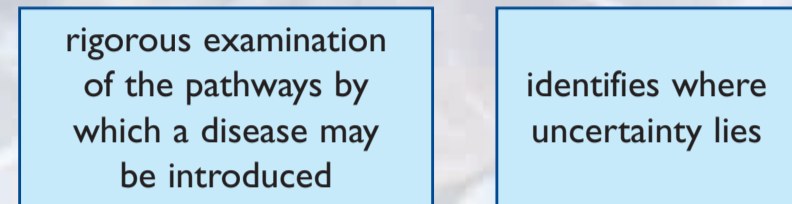
OBJECTIVE
TRANSPARENT
DEFENSIBLE

- IRA ensures that “...sanitary and phytosanitary measures are based on an assessment... of risks to humans, animals or plant life and health” SPS agreement.
- The SPS agreement requires an IRA to justify levels of protection greater than those provided by international agreement.

Why be quantitative?

A quantitative IRA requires that: probabilities for each step of the risk analysis are used

the overall risk is broken down into its component parts



“Risk assessment cannot remain true to scientific ideals unless it discloses the limitations of the science it contains.” Vern W. Walker¹

BUT

Quantitative IRA is demanding of data and time.

Conclusions

- IRA will become an increasingly important tool in determining the appropriate level of import restrictions.
- A quantitative approach
 - assists in understanding the pathways of disease introduction
 - identifies where data is missing
 - prioritises future research
- The available simulation software makes quantitative IRA a practical option BUT the outputs must be interpreted as a range of values and not point estimates

QUANTITATIVE IMPORT RISK ANALYSIS HAS AN IMPORTANT ROLE TO PLAY IN PROTECTING FARMED AND WILD FISH FROM EXOTIC DISEASES.

References

- Walker, V.W. (1998), Keeping the WTO from becoming the “World Trans-Science Organisation” Scientific Uncertainty, Science Policy, and Factfinding in the Growth Hormones disputes. Cornell International Law Journal, vol 31 p252-319.
- Kahn, S.A., Beers, P.T., Findlay, V.L., Peebles, I.R., Durham, P.J., Wilson, D.W., and Gerrity, S.E. (1999), Import risk analysis on non-viable salmonids and non-salmonid marine finfish. Australian Quarantine and Inspection Service.

high					HIGH priority
medium					HIGH priority
low					MEDIUM priority
v. low					
v.v. low					LOW priority
negligible					
	negligible	low	medium	high	catastrophic

(adapted from Kahn *et al.*, (1999))

Figure 1: Risk evaluation matrix for priority ranking of exotic aquatic animal diseases.