MYXOZOAN SPECIAL SESSION

Research Approaches To Studying Climate Change Effects On Myxozoan Disease

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Goals of Session

1. **Dialog on approaches to studying effects of climate on myxozoan diseases**
2. **Identify information gaps that need to be addressed and methodologies that need to be developed**
3. **Identify appropriate models for study**
4. **Identify researchers interested in developing collaborative proposals or existing research that could be expanded through collaboration**

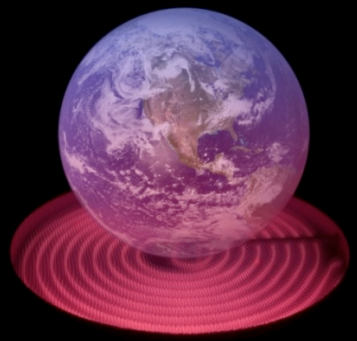
For aquatic organisms its not all about temperature

Johnson et al. (2009) The British river of the future: How climate change and human activity **might** affect two contrasting river ecosystems in England. *Science of the Total Environment* 407:4787–4798.

Synopsis- the freshwater environment is going to change, but we're not sure how

What will be affected by climate change?

Temperature



Ocean currents

Sea water level

Weather extremes

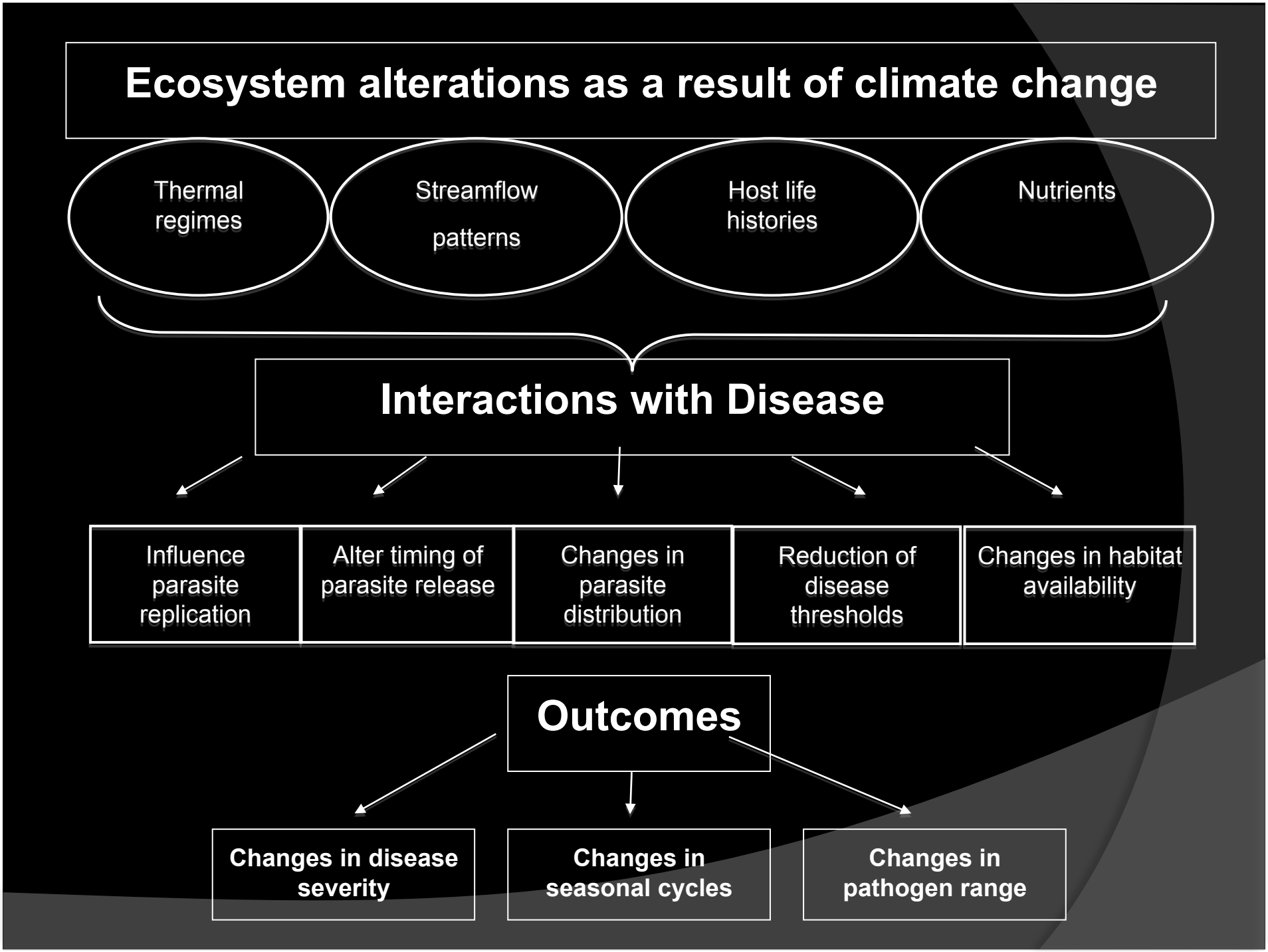
Eutrophication

Water cycle

Contaminants

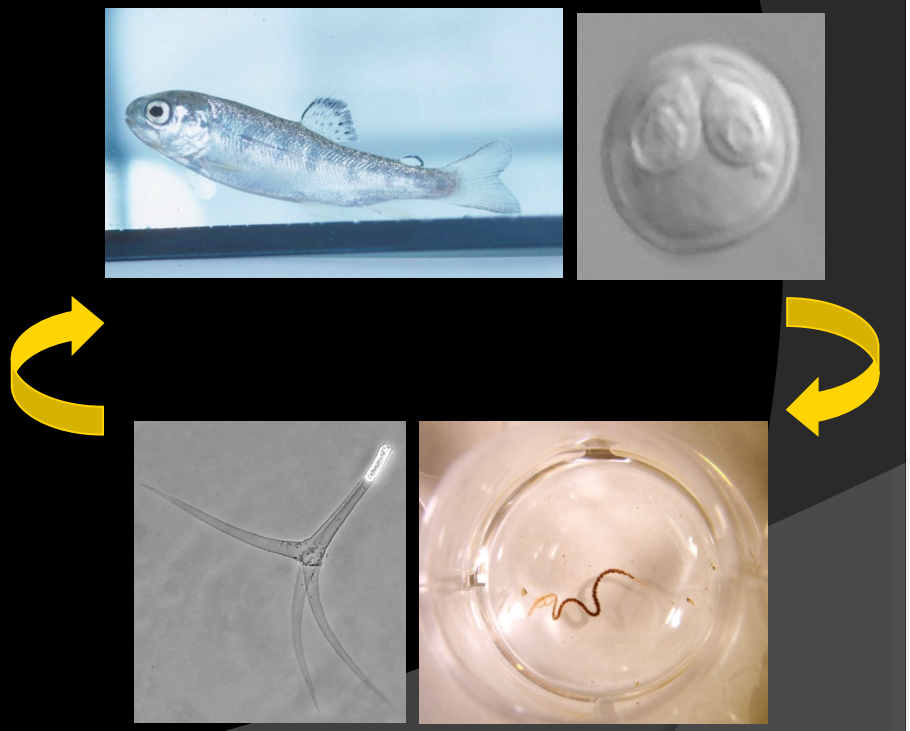
Acidification

UV penetration


Ecosystem alterations as a result of climate change
Thermal regimes
Streamflow patterns
Host life histories
Nutrients
Interactions with Disease
Influence parasite replication
Alter timing of parasite release
Changes in parasite distribution
Reduction of disease thresholds
Changes in habitat availability
Outcomes
Changes in disease severity
Changes in seasonal cycles
Changes in pathogen range

How Predicting Future Disease Patterns For Myxozoans Differs From Other Fish Pathogens

- **Infection in both vertebrate and invertebrate hosts considered**
- **Physical habitat is a large component**
- **Myxozoans with complex life cycles versus those with direct cycles**
  - **Will these require different approaches?**



Discussion Topics

- **What do we still need to know about how temperature changes will affect myxozoan diseases?**
- **What methodologies are available or need to be developed for detecting changes and what are the limitations of these in developing predictions?**
- **How do we integrate various databases to develop a model for disease effects**
- **What myxozoans would be appropriate models for study?**