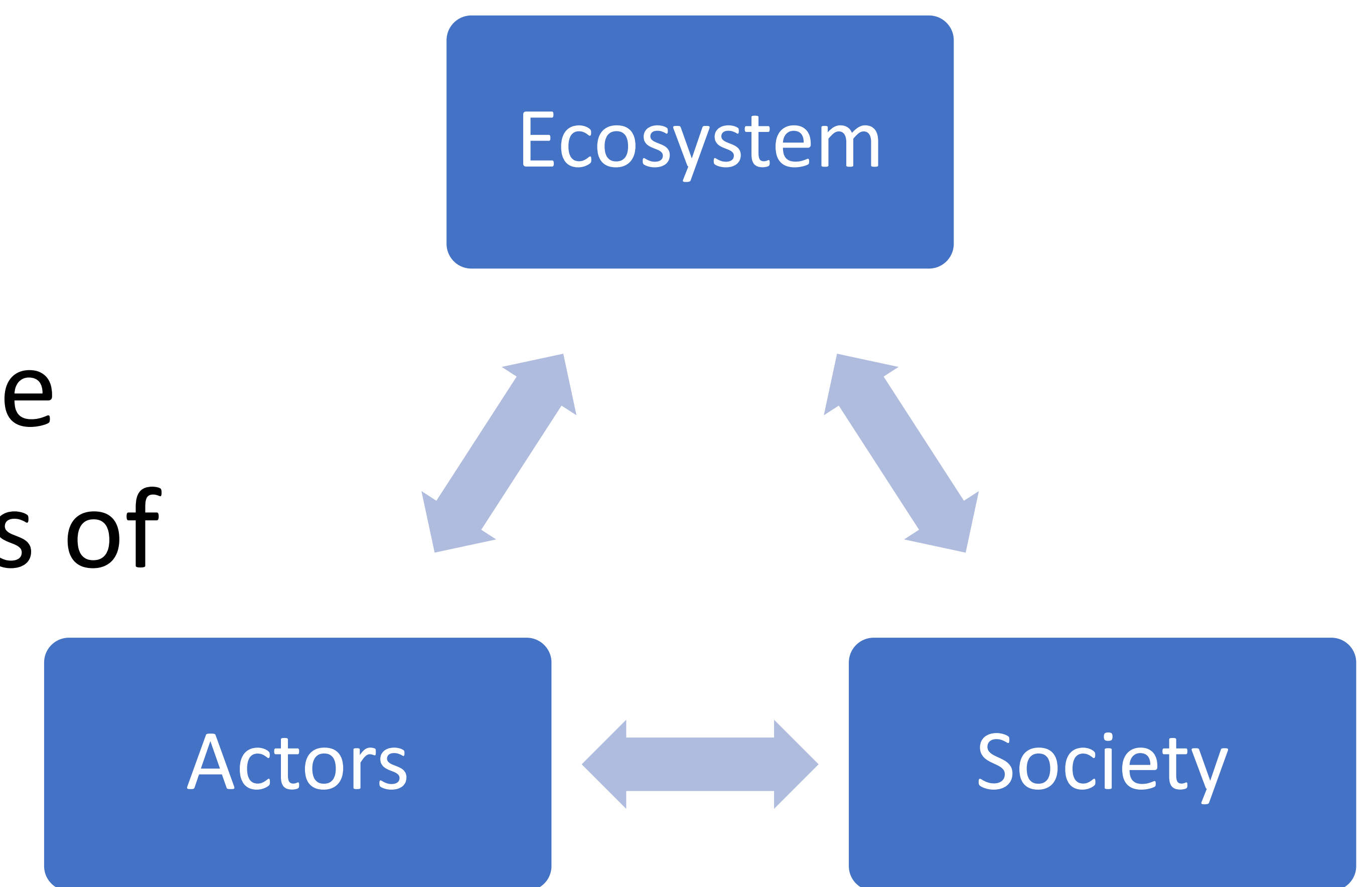


Evaluating International Eel Management Frameworks Based on an Ecosystem-Based Management Approach

A. ISHII (Tohoku University), M. GOLLOCK (The Zoological Society of London), C. PIKE (ZSL) and K. KAIFU (Chuo University).

? 1. What is **ecosystem-based** management?

A “holistic approach to management that recognizes the physical, biological, economic, and social complexities of managing living resources” (Patrick and Link, 2015)



? 2. What are the core principles of **ecosystem-based** management?

A (Long et al. 2015)

1. Consider Ecosystem Connections
2. Appropriate Spatial & Temporal Scales
3. Adaptive Management
4. Use of Scientific Knowledge
5. Integrated Management
6. Relevant Stakeholder Involvement
7. Account for Dynamic Nature of Ecosystems
8. Ecological Integrity & Biodiversity
9. Sustainability
10. Recognise Coupled Social-Ecological Systems
11. Decisions reflect Societal Choice
12. Distinct Boundaries
13. Interdisciplinarity
14. Appropriate Monitoring
15. Acknowledge Uncertainty

? 3. What do they mean for eel management?

1. Consider bi-directional interactions with habitats and other species
2. Ensure both full life-history and geographic range in aquatic biomes are considered in management.
3. Learning through cyclic decision-making, monitoring, and assessment, in co-ordination with other range states.
4. Ensure decision-making and implementation of measures is informed by up-to-date scientific knowledge.
5. Account for all factors that impact eel populations in management.
6. Considering for stakeholders’ opinions in decision-making and ensuring timely sharing of relevant information.
7. Accounting for both the eel across its life history and the associated changes in surrounding ecosystems.
8. Management should consider broader biodiversity and strive to ensure that eel populations are self-sustaining.
9. Sustainable use of eel species should be fundamental to management.
10. Interactions between eels, associated habitats and relevant actors should be considered together rather than individually.
11. Mechanisms should exist to consider the choices of the broad populous in range states.
12. Management should consider the entire range but appropriate sub-units should implement measures.
13. Mechanisms should exist to consider other sources of knowledge e.g. Fisher experience.
14. Monitoring of eels, aquatic ecosystems and coupled social-ecological systems should use suitable indicators.
15. Adaptive management and the precautionary approach should inform measures.

CONCLUDING REMARKS:

1. EBM is not a perfect framework but offers a holistic model for eel management.
2. Some elements of the EBM approach are complicated by the range and panmictic life history of eels.
3. As such, this must involve international co-ordination to be truly effective.
4. Adoption of EBM offers opportunity to strengthen conservation and sustainable use of Anguillid eels.