

A new conceptual framework to investigate social transformations in socio-ecological ecosystems

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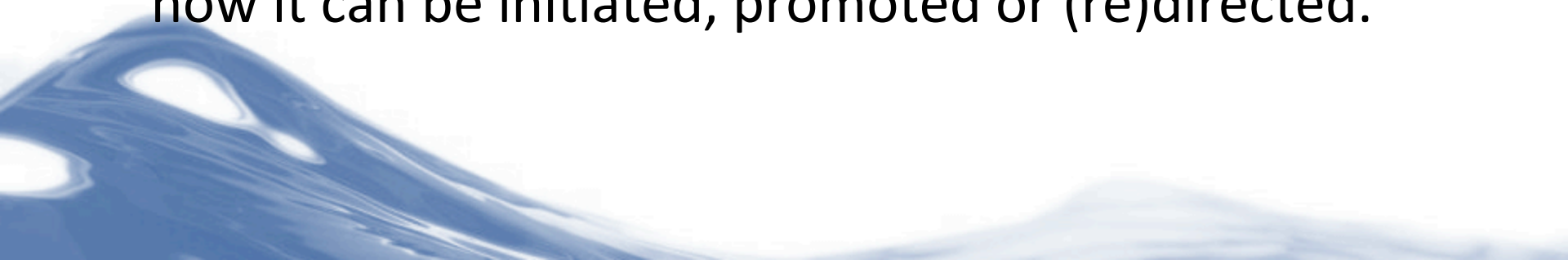


Outline of the talk

- Connecting natural and social systems
- Why social transformations in marine socio-ecological systems?
- Development of a new conceptual framework for social transformations
- Potential applications for policy makers, scientists and industry



Why social transformations for marine socio-ecological systems?

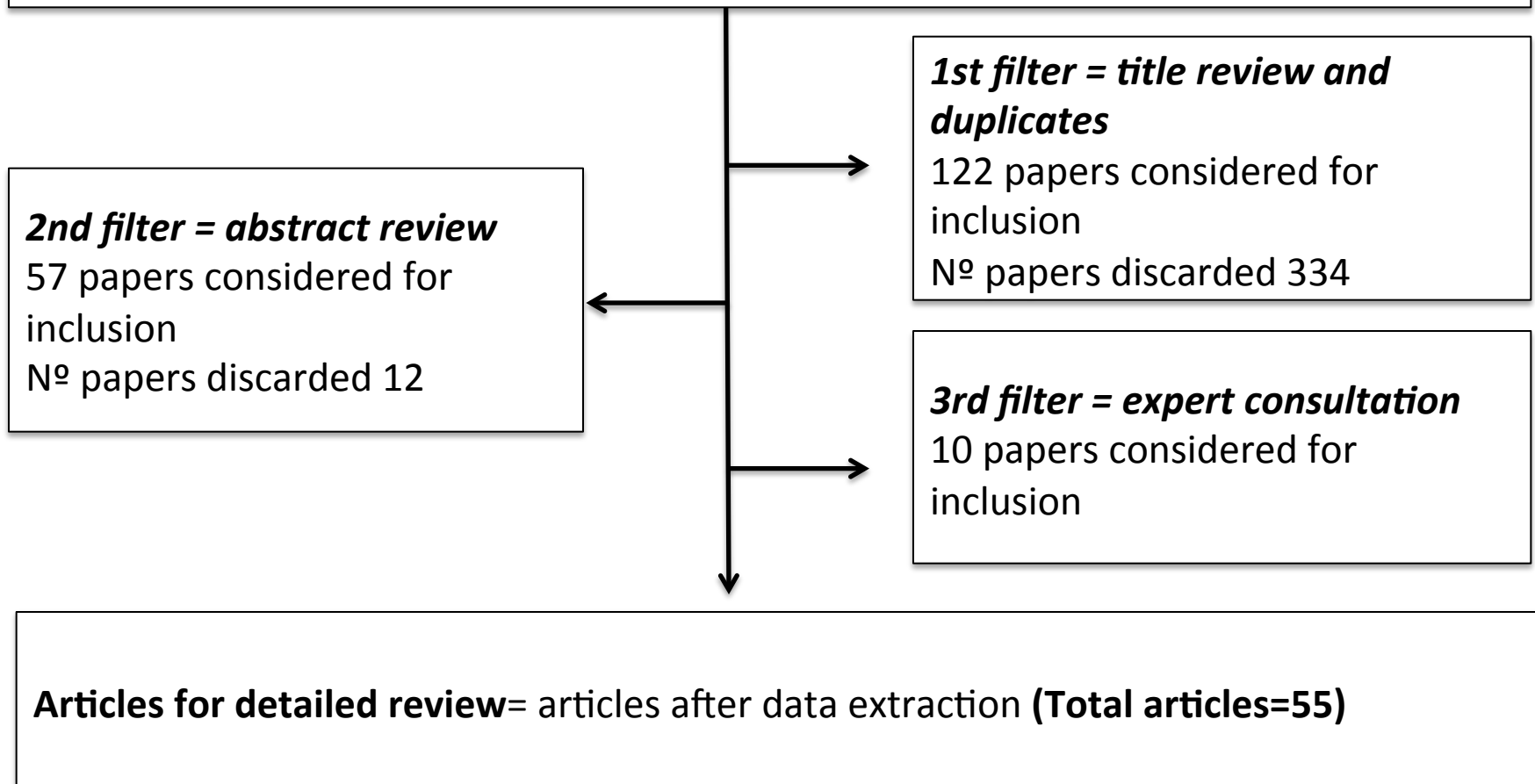
- Most research on marine socio-ecological focuses on changes of marine ecosystems and their ecological functions (Chapin et al. 2011)
 - However, the associated social transformations are still largely unexplored (Villasante and Österblom, 2015)
 - It is difficult to address today's great challenges without an understanding of how real and enduring social transformation comes about and how it can be initiated, promoted or (re)directed.
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Research objectives

- To investigate social transformations and the reasons behind them by using case studies in Europe:
 - Investigate the type and magnitude of the social transformations in marine socio-ecological systems,
 - Reconstruct social transformations to determine “where”, “when”, “why”, “how” and “who”:
 - Systematic literature review
 - Development of a new conceptual framework
 - Template (online) for data collection of local studies

Systematic literature review

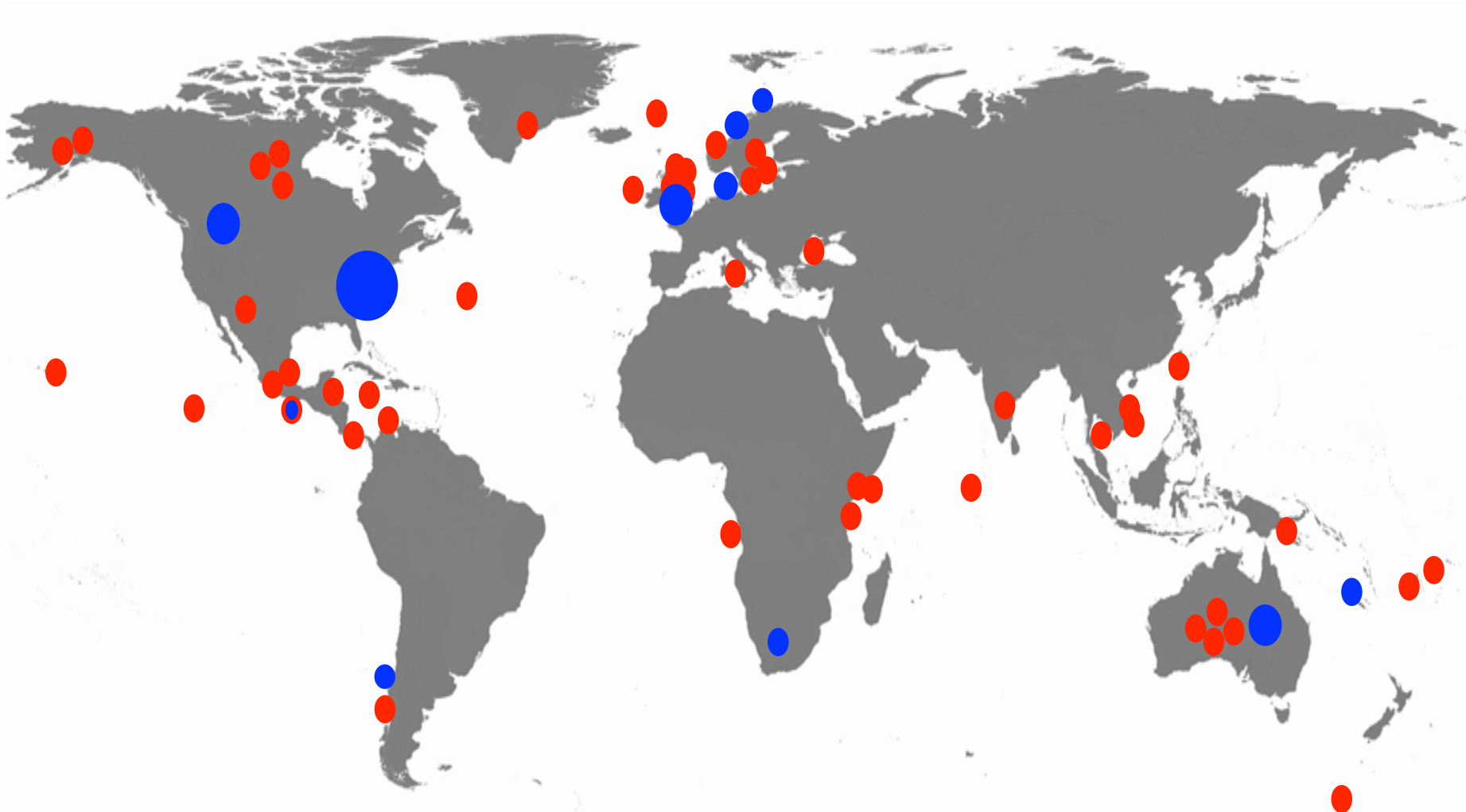
Literature search = total number of articles sourced using keywords such “resilience, shift, change, transform, adapt, transition”, AND “marine, fisheries”, AND social”. No geographical boundaries (1950-2015) – Scopus Web (**Total articles 456**)



Systematic literature review

- Results were extracted and recorded in a standardized tabular format by key variables:
 1. Year, key words and objectives of the paper
 2. First author, discipline and country of affiliation
 3. Scale of the case study (local, regional, national, global)
 4. Type of paper (conceptual, review, empirical)
 5. Social transformations included? (Y/N)
 6. Type of social transformation (co-management system, MPA)
 7. Impacts on species (demersal, pelagic) and coastal activity (fisheries)
 8. Impacts on human well-being (income, poverty, human health)
 9. Indicators used (social variables)
 10. Time scale (months, years, decades)
 11. Reversibility of the change (Hysteretic, Easy to reverse)
 12. Source of evidence (field work, modeling, literature)
 13. Confidence of evidence (well established, contested)


Global distribution of social transformations case studies (red) and affiliation of first author (blue)




What is a social transformation?

- Any analysis of a transformation needs to examine the following elements (Moore et al 2014):
 - *Ecological element*: natural capital, which includes the ecosystem processes, functions, and species configurations; and the ecosystem services that are generated by that natural capital
 - *Social element*: norms, values, and beliefs; rules and practices, such as laws, procedures, and customs.
- We define a social transformation as “*a fundamental and critical change of practices and institutions of a social structure of a marine social ecological-system at the same time*”.

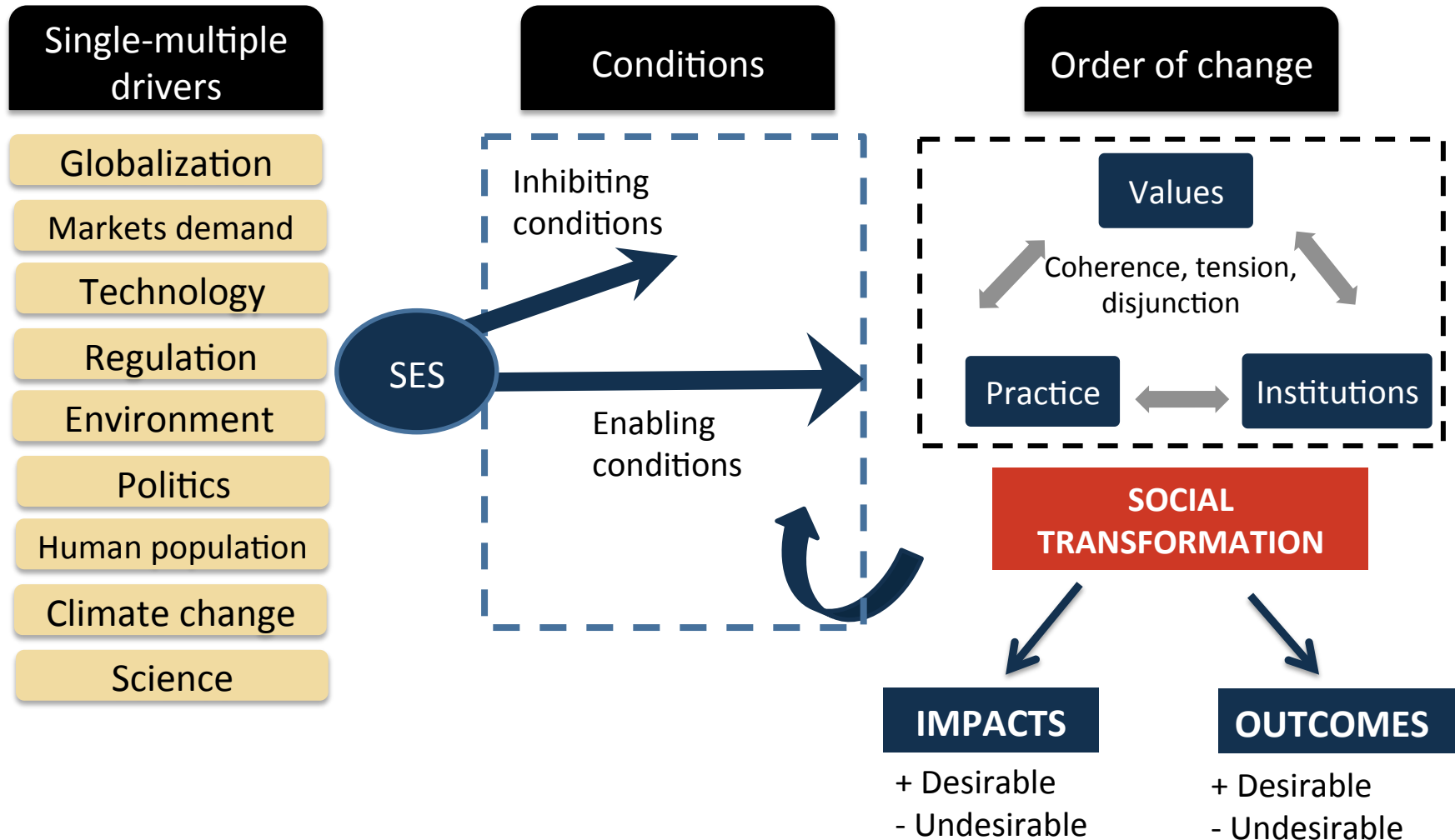
What we mean by a social transformation?

- **Core elements of the social structure**
 1. **Practices:** the changes experienced by different marine activities such as industrial and small-scale fisheries, aquaculture, and canned industry,
 2. **Institutions:** the diversity of laws, regulations and costumes with competence to adopt decision on marine activities,
 3. **Values:** shared ways of living and thinking that include symbols and language (verbal and non-verbal); knowledge and beliefs (what is “good” and “bad”).
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What we mean by a social transformation?

- **Differentiating concepts from social sciences:**
 1. **Adaptation:** reflects the capacity of a system to adjust its responses to change in external drivers and internal processes (change on “*practices*”),
 2. **Transformation:** a fundamental shift in the institutional dimension and patterns of practices through time (change on “*practices*” and “*institutions/governance*”),
 3. **Social innovation:** can be transformative or not, but implies a social change.
 4. **Revolution:** recombines existing elements of a system in radically novel “*practices*”, “*institutions-governance*” and “*values*”.
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A new conceptual framework for social transformations in marine socio-ecological systems



Operationalizing guidelines for analysing social transformations

- Development guidelines for analyzing ST
 1. Describe biophysical, social and governance boundaries of system or unit of analysis (e.g. *métier*, fishing fleet, coastal community),
 2. Identify “*what*” (e.g., environmental shock), “*who*” (government, fishers, coastal community) drives the ST, “*why*” (improving compliance by fishers) and “*when*” (year, decade, etc.),
 3. Identify and describe the enable and inhibiting conditions which facilitate (or not) the ST,
 4. Analyse the relationships between the practices, institutions and values present in the system.

Operationalizing guidelines for analysing social transformations (2)

- Development guidelines for analyzing ST
 5. Analyse type(s) of factors (e.g., environmental, economic, institutional, social) driving the ST, and the fundamental and critical impacts (desirable or undesirable) of drivers, identifying what are the consequences for different actors,
 6. Select and validate the most suitable quantitative and/or qualitative indicators with the main stakeholders affected by the ST to monitor the process over time,
 7. Design and evaluate alternative strategies and scenarios to successfully navigate into resilient and sustainable trajectories of the system.
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Summary

- Using the social transformation paradigm we can:
 - Standardize evidence and tools with a common language but with methodological pluralism,
 - Provide key information about local-regional-global dynamics of marine systems currently unavailable for policy makers,
 - Identify adaptive strategies developed by social actors over time,
 - Disentangle any barriers faced by fishers, enterprises and institutions in relation to social transformations, and
 - Develop the best plausible scenarios which allow navigation toward acceptable economic and social trajectories

Acknowledgments

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More information: <http://www.ices.dk>