

Indicators and assessment systems

Caught between policy and science?

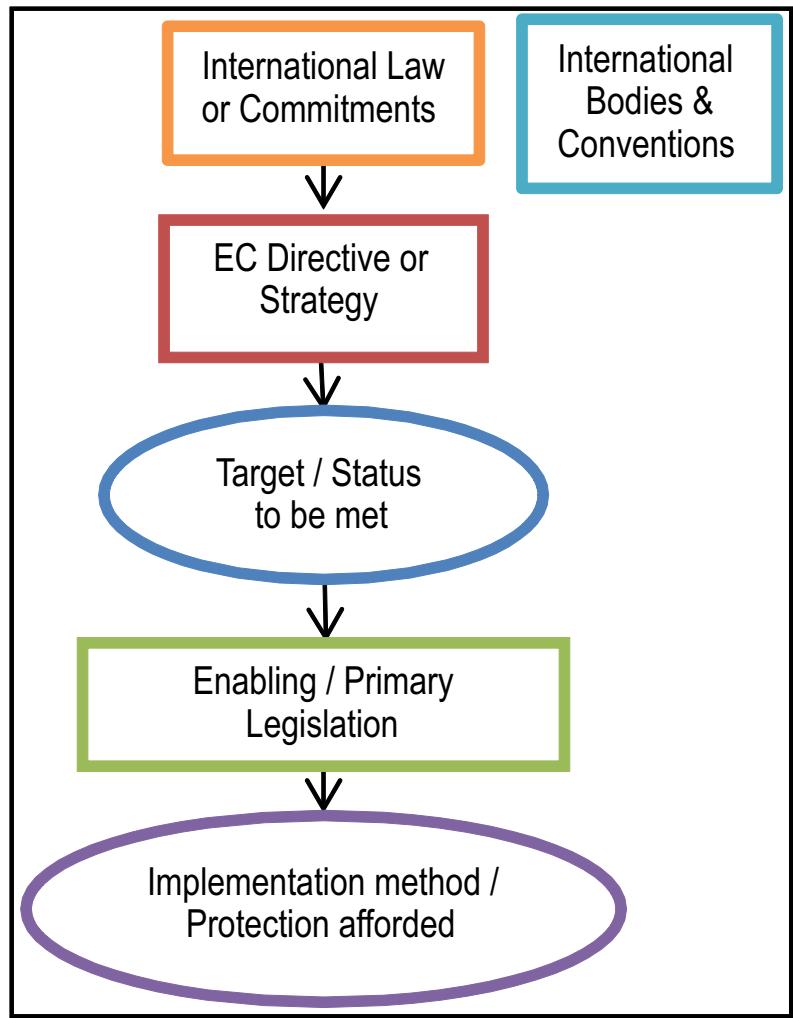
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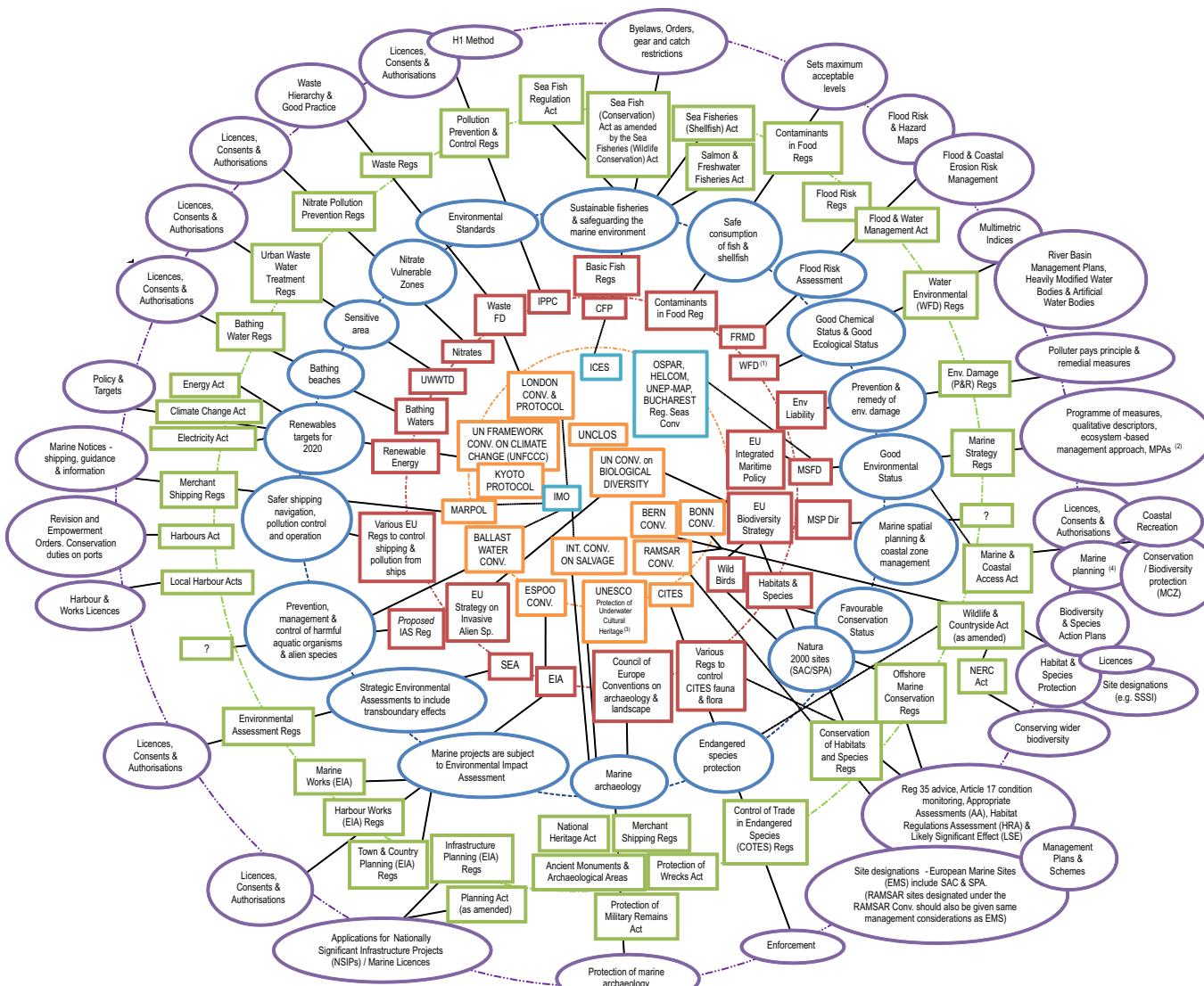
Setting the scene



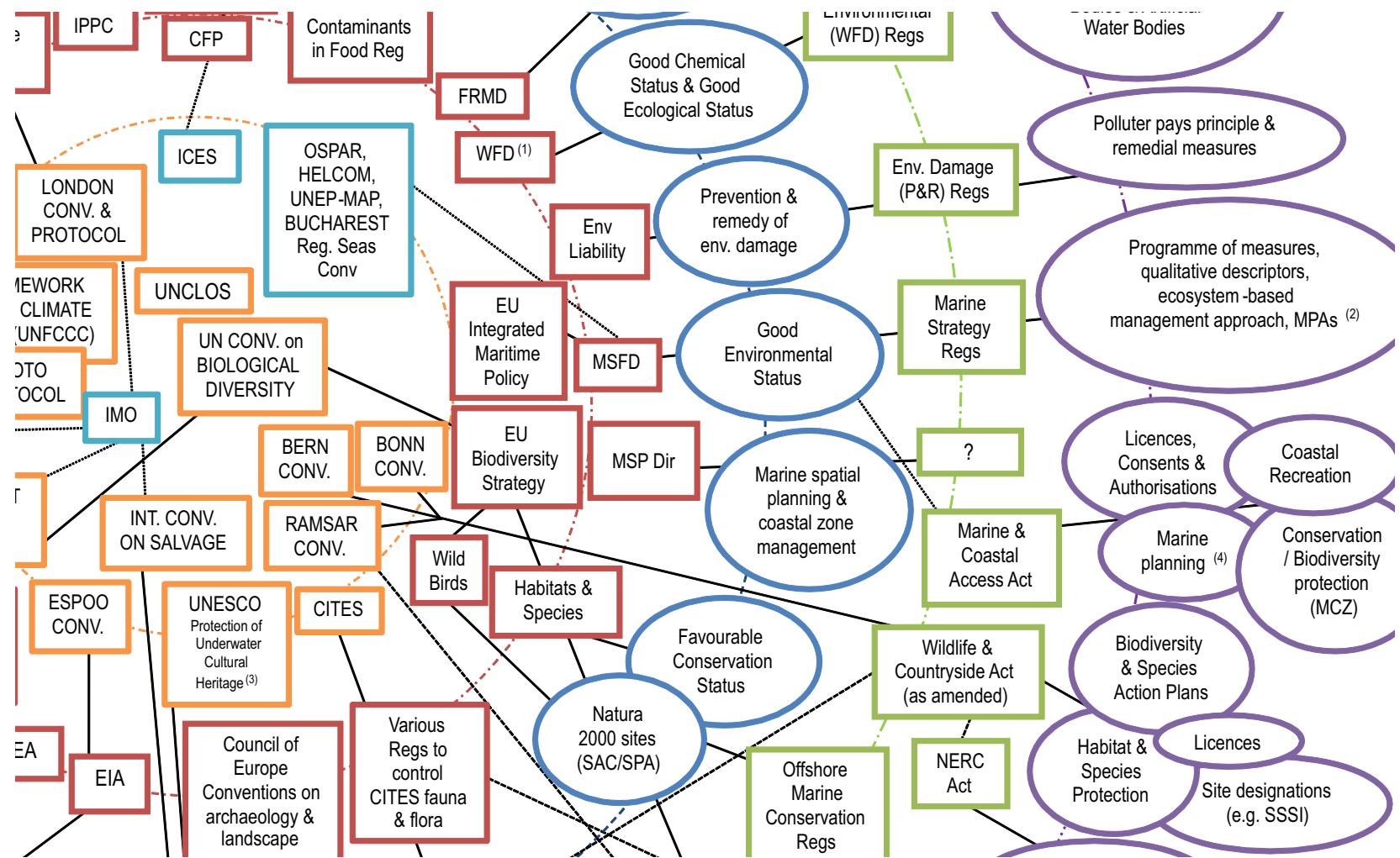
[Boyes & Elliott 2014]

Over 200 pieces of legislation with direct relationship to marine waters

Setting the scene – a horrendogram

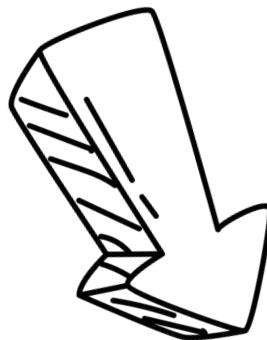


Setting the scene – a horrendogram



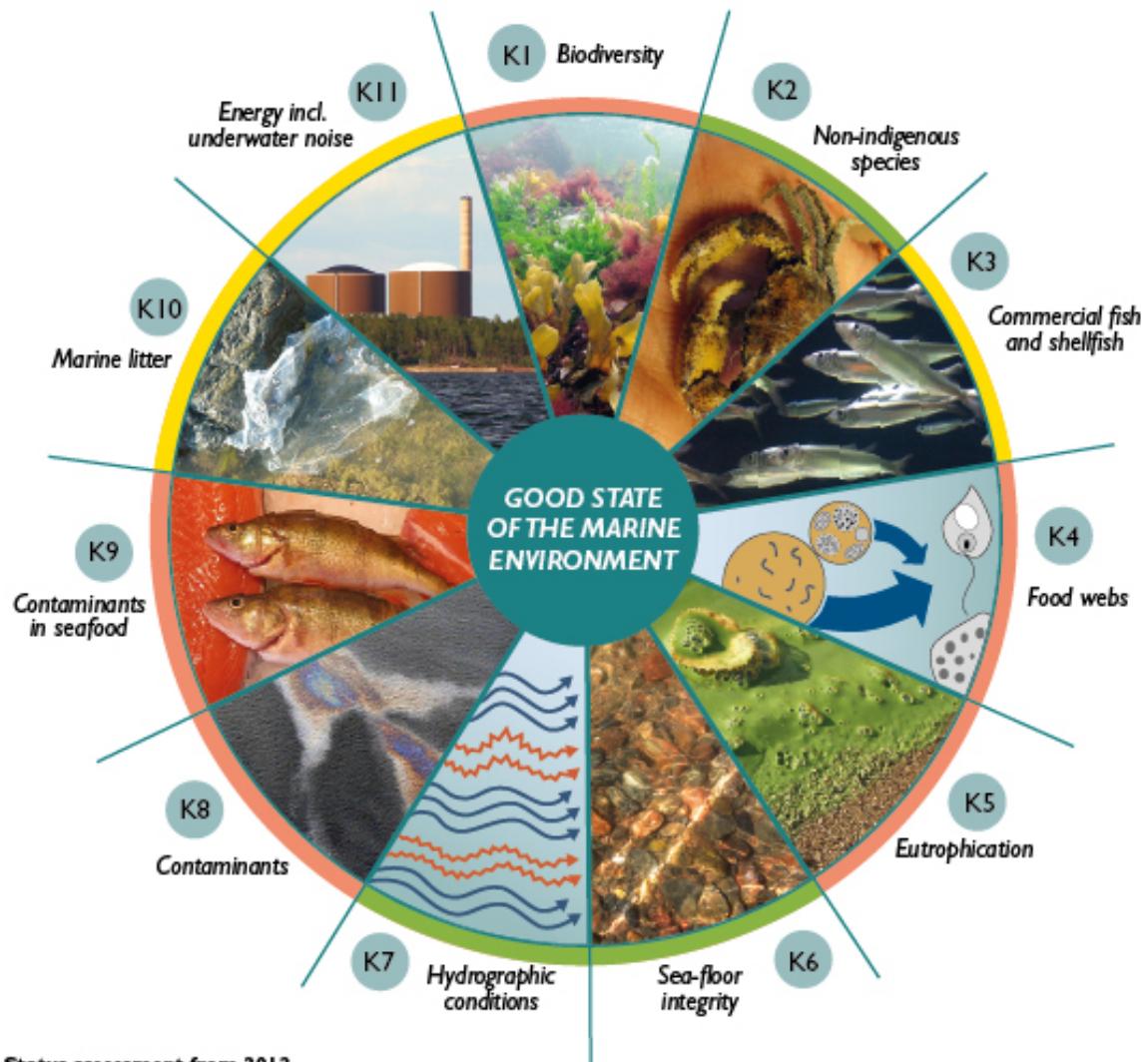
What happened to our simple world?

- Individual, independent indices
- Sectoral management



- Complex legal frameworks of indicators
- Integrative assessment, ecosystem-based approach
- Holistic management

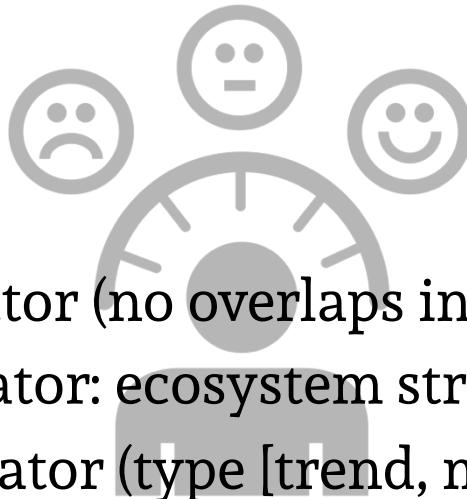
Example: MSFD – Marine Strategy Framework Directive



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Photos: Mats Westerborn,
Maiju Lehtimäki, Riku Lumiova,
the Finnish Border Guard/SYKE,
Per Mickwitz and Eija Rantajärvi

How to develop an indicator?

- Embed the indicator into the context/framework
- An indicator needs to answer management questions



- Scope of indicator (no overlaps in indicator set)
- Target of indicator: ecosystem structure or function
- Design of indicator (type [trend, multi-metric, ...], scale [time, space], ...)
- Position in management cycle (pressure, state, ...)
- Implementation (algorithm, numerical scale, thresholds, references, rules for a “good indicator”)

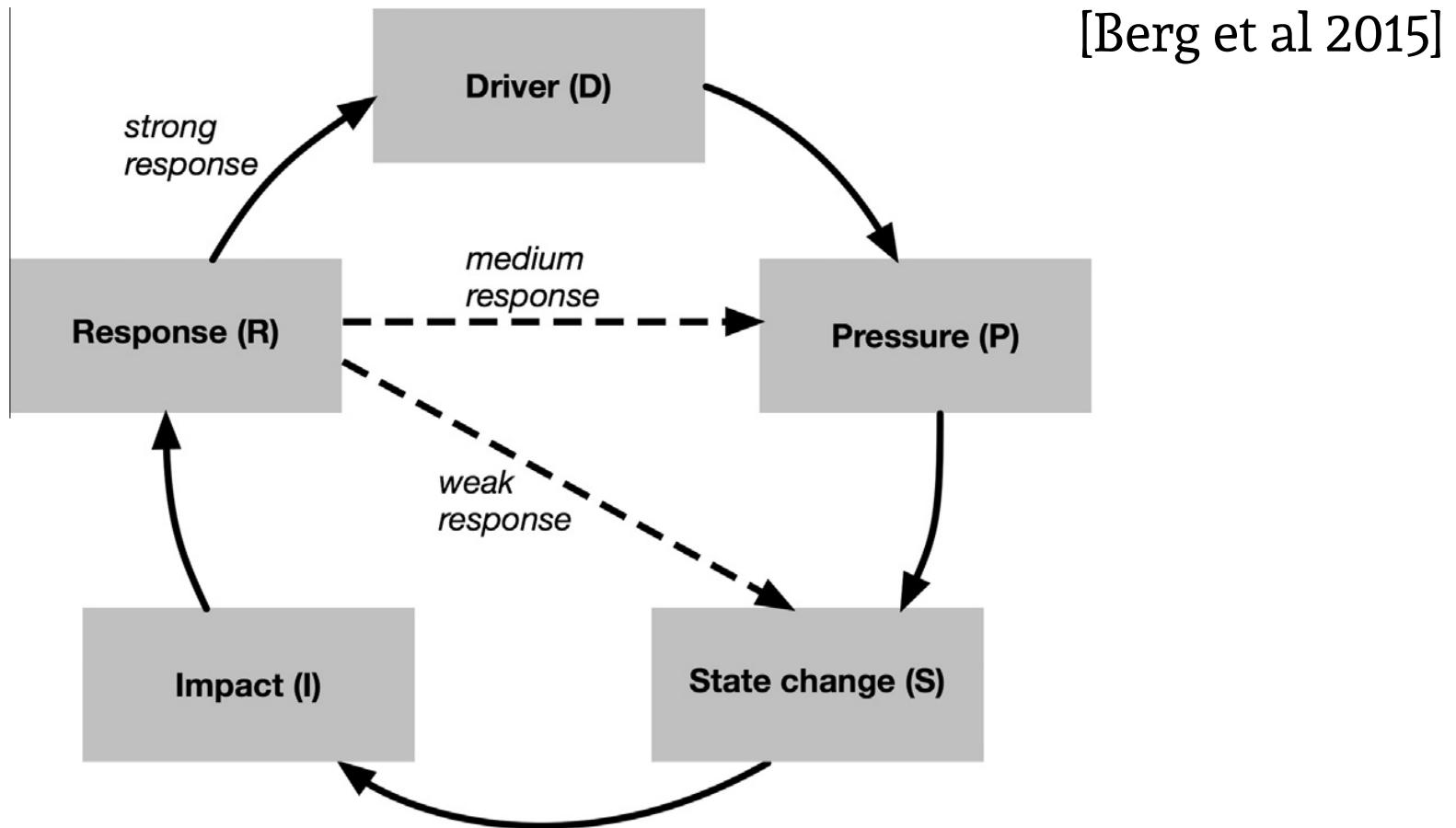
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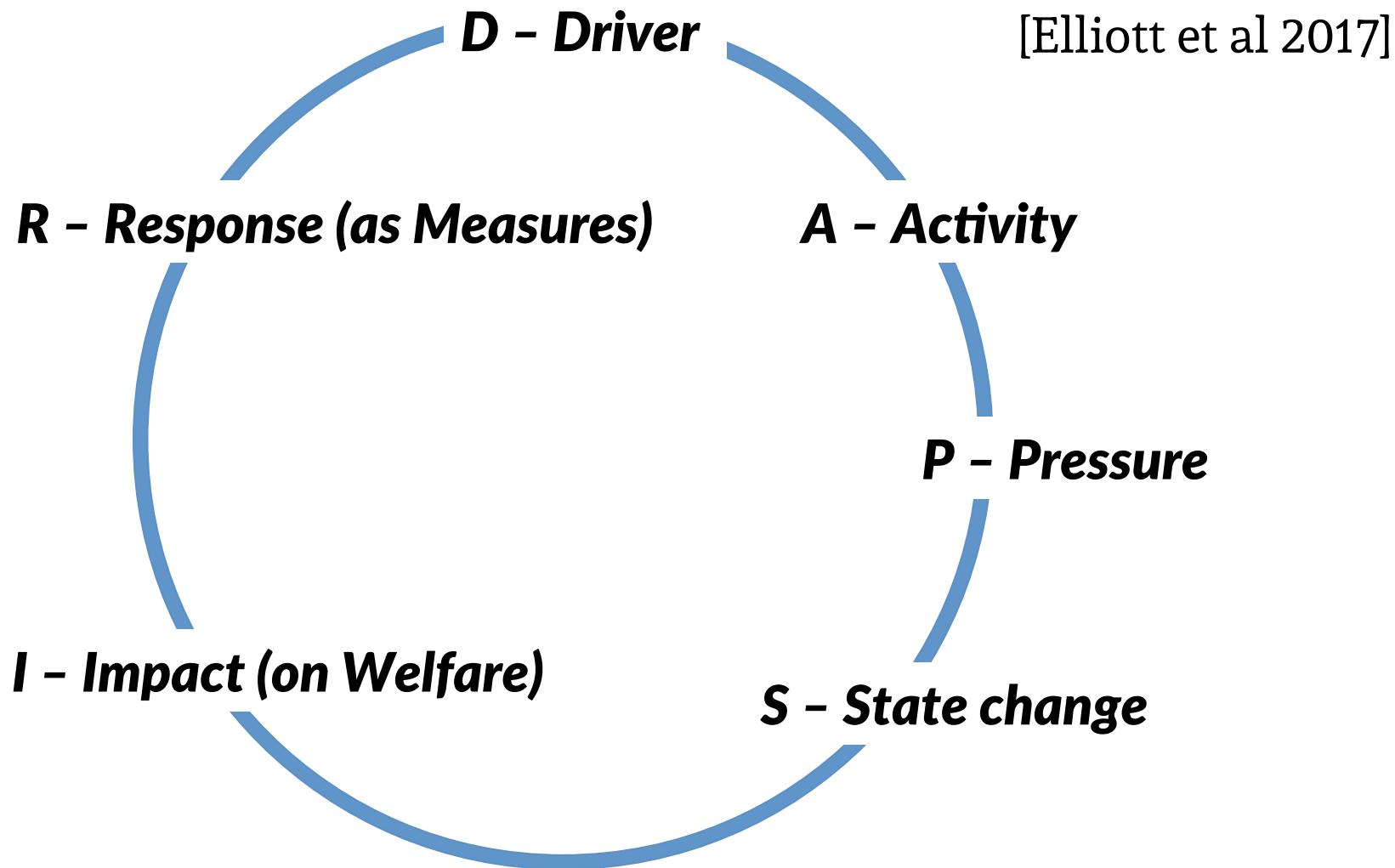


- Scope of indicator
- Top-down (from policy needs to implementation)
instead of
bottom-up (from science to management)
- Implementation [single metric, multi-metric, ...], scale
[time, place, ...]
- Position in management cycle (pressure, state, ...)
- Implementation (algorithm, numerical scale, thresholds, references, rules for a “good indicator”)

From DPSIR to DAPSI(W)R(M) – structuring problems



From DPSIR to DAPSI(W)R(M) – structuring problems



How to develop an assessment system?

- Ecosystem health is a human invention
- Science does not set thresholds, but policy does
- Make a rough cur first (deploy early and often), refine later (management cycles)

Example: NEAT

Nested Environmental status Assessment Tool

www.devotes-project.eu

A way to put sectoral indicators together in a consistent and scientifically sound way – and provide a nice software to do the work for you!

Caught between policy and science?

Yes

- Legal frameworks tend to be poorly defined
- Managers want clear answers, scientists don't give them
- Some indicators are designed to understand natural systems, not to assess them

No

- Stick to best practices and given frameworks
- Include uncertainty from the start
- Have a Man-in-the-Middle knowing both worlds

Thank you!

<https://github.com/torstenberg/indicators>

