50 years of case studies – what have we learned about measuring environmental impact

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ITOPF

- Primarily funded by the global shipping industry (via P&I Clubs)
- Operates on a non-for-profit basis
- Based in London but provides a global service
- Technical team with 14 responders available 24/7
- **Provides objective advice on effective response to marine spills of oil & HNS & bulk products**

1967 Torrey Canyon

Tanker Owners Voluntary Agreement concerning Liability for Oil Pollution

1968

'International Tanker Owner Pollution Federation' (ITOPF) was established to

1970s

ITOPF developed its technical services function and established a team of well qualified

1999

ITOPF's services are formally extended to the owners of other types of ships

2018 Celebrating 50th Anniversary

36 staff provide objective technical advise to Members (429 million GT) and Associates (779

INTERSPILL 2015 – are post spill studies becoming the norm?

- 1985-1994, ITOPF is aware of studies having been conducted in just over 10% of cases
- Increase in number of studies from mid-1990's onwards
- From 1995 onwards, approx. 40% of incidents involve some aspect of post-spill study
- Significant increase over the last 30 years in the number of studies being conducted for small spills of <7MT

International approach to post-spill monitoring and damage assessment

IMO Conventions
CLC '92
IOPC Funds
2001 Bunker Convention

National system **unrelated to international regime**

National legislation **directly transposes** international convention text

National legislation **fully or partially transposes** Convention text, may incorporate other national legislation

State has not ratified Conventions, uses multiple environmental instruments to determine liability, environmental damage assessment and remediation procedures

- In ITOPF's experience, legislation in place around the world falls into above mentioned three broad categories

Defining and measuring environmental harm

- Environmental economics and valuation methodologies developed to guide policy and decision makers over the last fifty years

- Now frequently used to legally define compensation quanta although there is discrepancy with how environmental harm is defined legally.

Lessons from the last fifty years – variety of formulae

- A range of simple formulae presented as a basis for ED claims arising from **PRESIDENTE ILLIA** spill (2008):

  - Value of oil at time of spill = ED

  - Cost of bird rehabilitation = ED

  - Hypothetical Willingness To Pay (WTP) of Patagonian Population.

- National law supersedes international agreements despite Argentina's ratification of CLC '92 and Fund '92 conventions.

- ED claims of a punitive nature were also submitted following the **ESTRELLA PAMPEANA** spill in 1999.

- A modelled approach based on the Soviet-era **Metodika** is retained in national legislation.

- Formulas based on:

  - volume of oil spilled

  - sensitivity of area

  - rate at which oil is removed

- An unsuccessful ED claim based in Metodika was submitted in connection with the **VOLGONEFT 139** incident in 2007.

- **OPA '90** grants trustees the rights to use mathematical models if they are reliable and state of the art, as part of National Resource Damage Assessment **(NRDA**).

- Habitat Equivalency Analysis (**HEA**) is a preferred method of calculating loss of 'service'; often calculated in '**discounted service acre years**'. Amenity sites calculated as **beach user days/recreational fishing days**.

- Recent NRDA cases include **ATHOS 1** (2004) and **COSCO BUSAN** (2007).

Lessons from the last fifty years - restoration

- Restoration/reinstatement – examples are few and often supported by few or no measures of success
- Projects reactive rather than subject to robust planning phase.
- Process to evaluate potential restoration measures against natural processes and working to complement these

Effective post-spill monitoring – recommendations

1. Recognise response as part of restoration

Removal of contaminants is a key principle in the reinstatement of degraded environments

Why is this not considered to be so with respect to oil spills?

1. Recognise response as part of restoration

wiki.reformrivers.eu/index.php/Category:Measures

REFORM

REstoring rivers FOR effective catchment Management

1. Water flow quantity improvement	4. Longitudinal connectivity improvement	7. Riparian zone improvement
2. Sediment flow quantity improvement	5. River bed depth and width variation improvement	8. Floodplains/off-channel/lateral connectivity habitats improvement
3. Flow dynamics improvement	**6. In-channel structure and substrate improvement**	9. Other aims to improve hydrological or morphological conditions

- Remediation dredging – *removal of contaminated sediment*

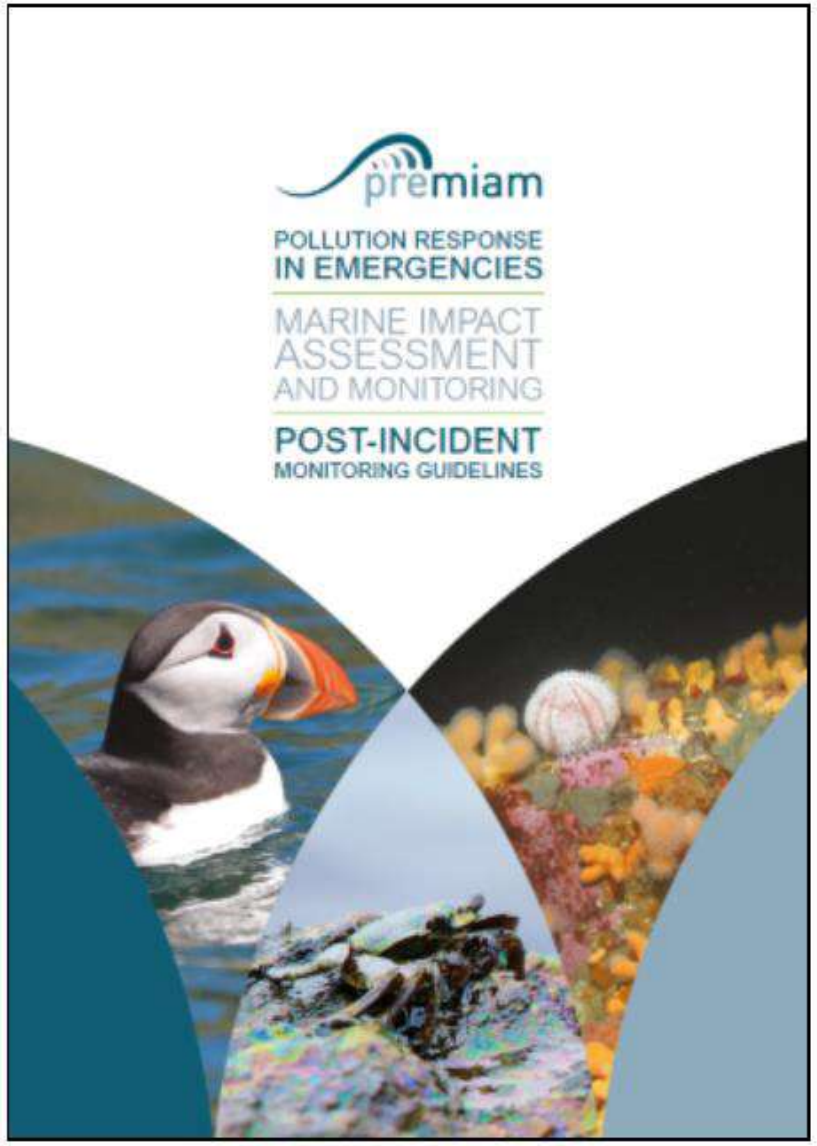
- Key measure in " end- of-pipe" aquatic restoration

Reference: www.REFORMrivers.eu

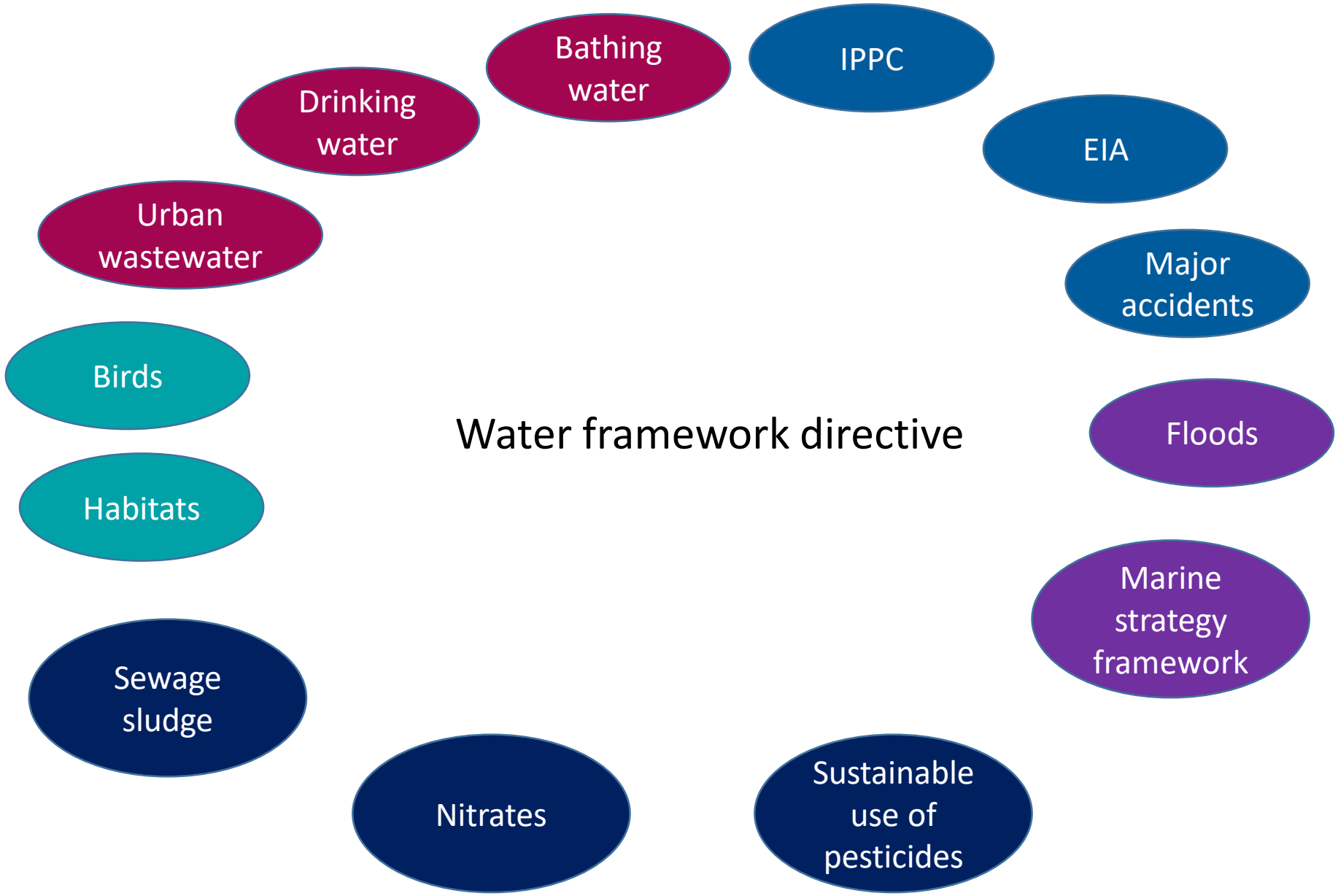
2. Specific post-spill monitoring guidelines

The principles of a monitoring plan

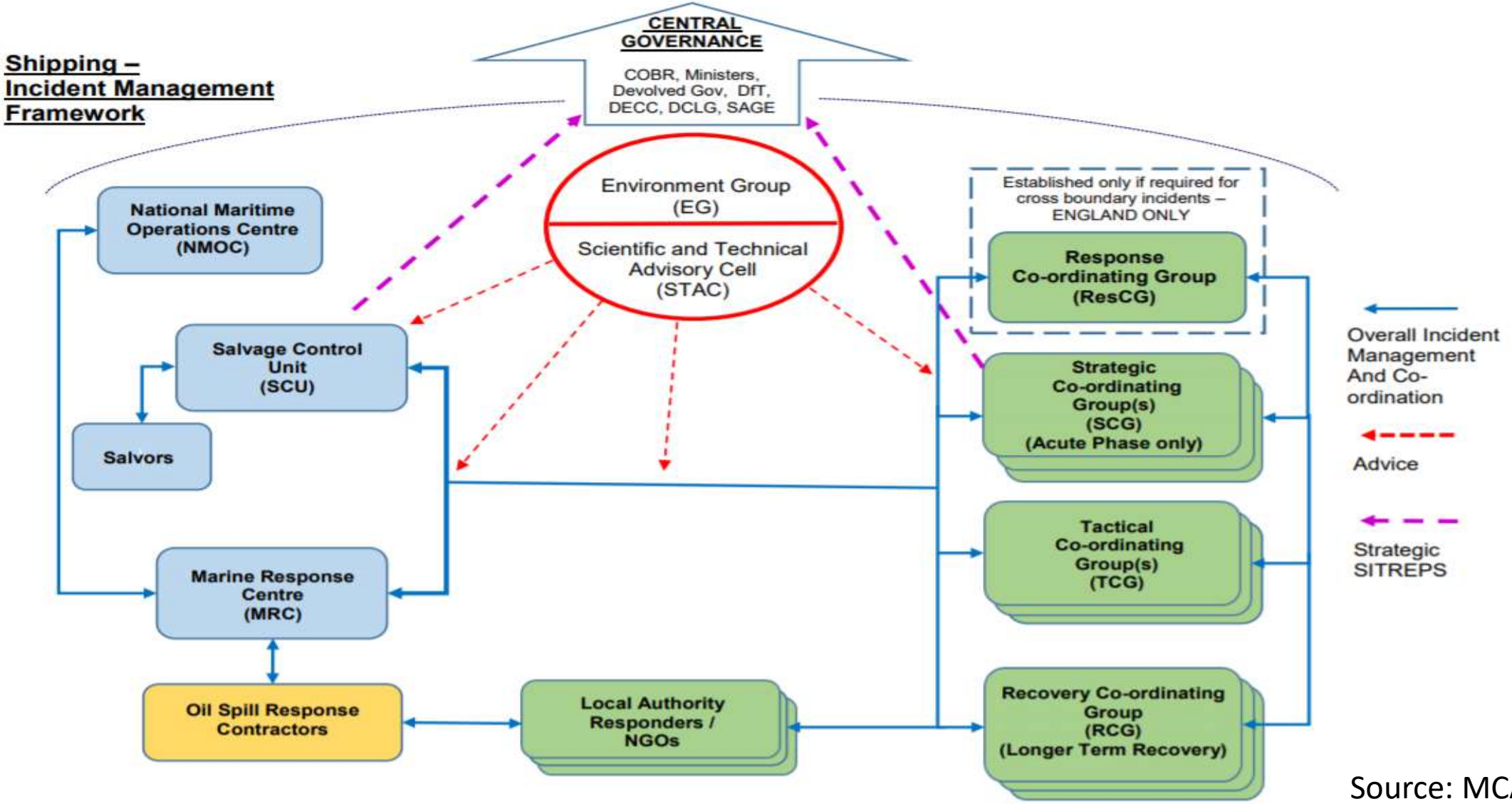
- When do we need to monitor?
- Why do we monitor?
- What do we monitor?
- Where do we monitor?
- How frequently do we monitor?
- When to stop monitoring
- Survey design
- Co-ordination and an Integrated Approach



2. Specific post-spill monitoring guidelines

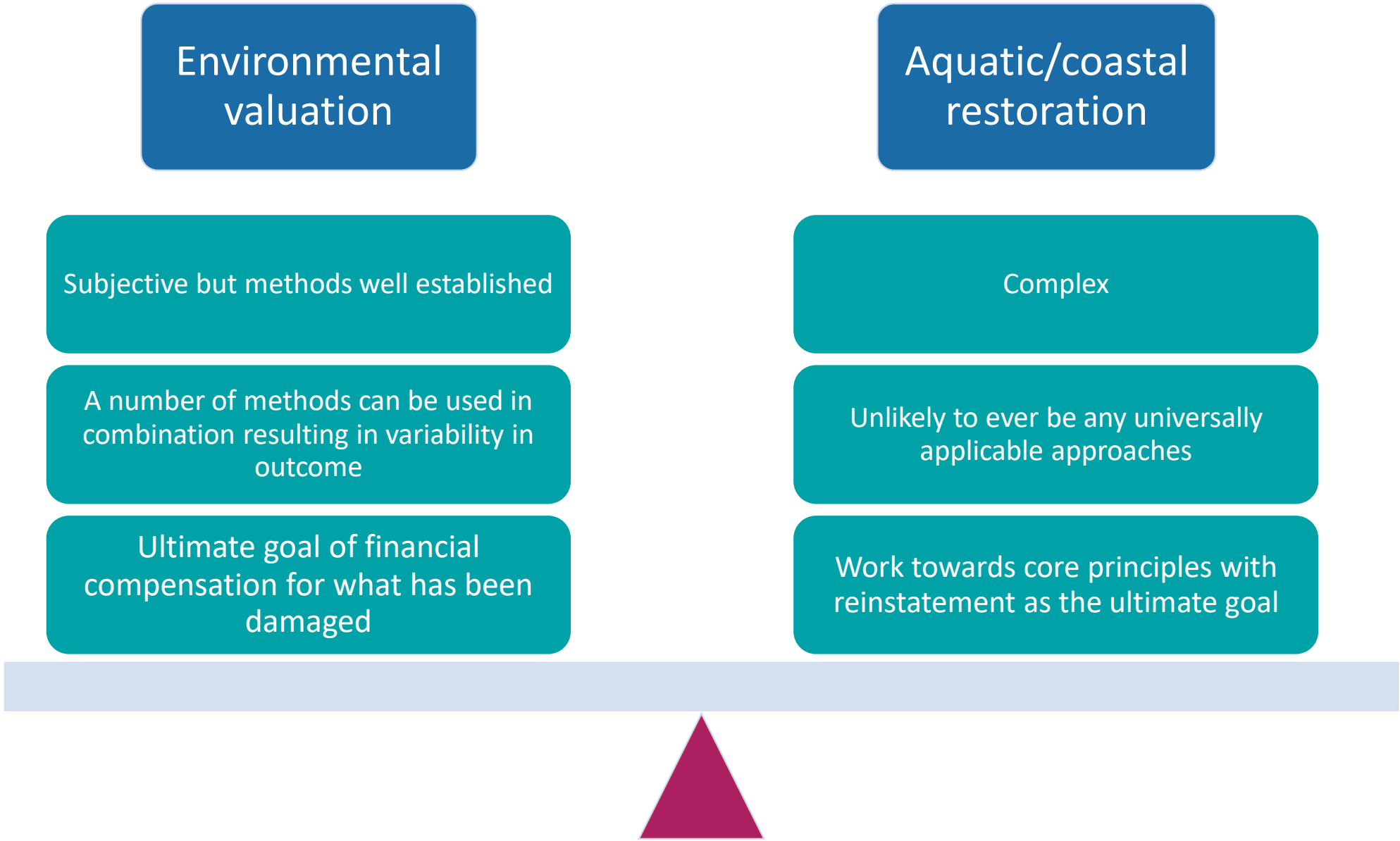


3. Collaborative approach between experts and response structure



Source: MCA

4. Shift in focus – academic research



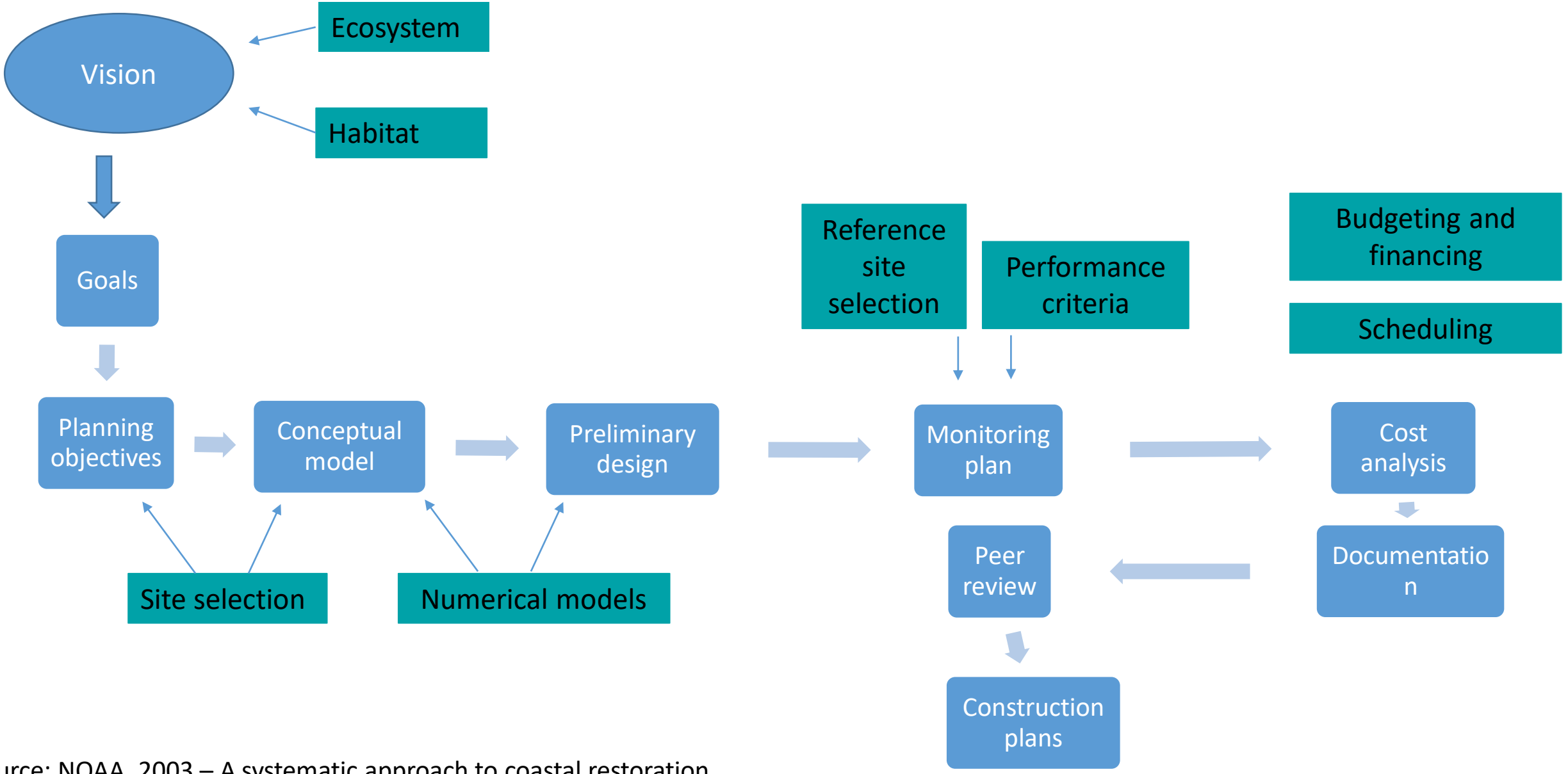
4. Shift in focus – project approach


Credit: Polaris Applied Sciences


Credit: Polaris Applied Science

- Conceptual frameworks well-established for coral restoration projects
- Coastal habitats that have been affected by oil should be subject to a similar research and project design process

4. Shift in focus – project approach



Source: NOAA, 2003 – A systematic approach to coastal restoration

Summary

- Theoretical and abstract theories have been useful for broader policymaking and setting international agendas but are often applied to compensation for simplicity
- Money available under compensation regimes should be invested in recovery dynamics
- Specific post-spill monitoring guidelines are a fundamental step towards moving away from a simplistic approach

Thank you!

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