A risk-based approach to regulating extraction activities

Dr Becky Hitchin
Joint Nature Conservation Committee, UK
Agenda

• What is risk-based regulation?
• UK regulatory landscape
• Challenges and solutions in understanding risk related to prioritised guidelines and standards
• Conclusions
What is risk-based regulation?

Regulation that focuses on allocating resources in proportion to the risks in question to address the most important environmental issues and is adaptive to changing circumstances

- Evidence-based
- Data-driven and responsive
- Auditable
- Clearly communicable
- Flexible
- Forward-thinking
What are the risks?

Risks
- Cost
- Environment
- Safety
- Technology
- Users of the sea
- Reputation
Where are the risks?

- Baseline
  - Reviewing assumptions
  - Narrowing scenarios

- EIA

- Operations
  - Monitoring
  - Adaptive management

Risks and risk reduction affects all EA process

Is EIA required?
UK experience

Minimising risk through guidelines and standards
### Guidelines: Transparency / participation

<table>
<thead>
<tr>
<th>Guidelines for access to environmental data and information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guidelines for procedures for stakeholder participation in activities in the Area</td>
</tr>
</tbody>
</table>
Guidelines: Transparency / participation – comparative assessment

Stakeholder-based process that agrees best options for decommissioning infrastructure
Guidelines: Transparency / participation – comparative assessment

- Define project remit
- Define assessment criteria
- Define comparison methods
- Provide stakeholders with knowledge needed to participate in CA workshop
- Compare options
- Discuss any weighting
- Consider sensitivity
- Collate areas of disagreement / evidence gaps
- Collate new evidence
- Regulator attends only as observer
- Cost only used as a “tie break”

Operator

• Creates draft CA report and provides
• Creates final CA report for inclusion in consent package
Transparency / participation – lessons learned

Deep sea mining use

- Transparency and participation should be at the heart of assessment processes
- Iterative stakeholder consultation allows refining of options and full use of available expertise, as well as managing stakeholder expectations as to transparency
- Important to include feedback loops in guidelines, so that stakeholders can see that their comments are being taken into account
- Process should not be onerous on stakeholder time or resources
# Guidelines: Adaptive management

<table>
<thead>
<tr>
<th>Guidelines on the use of adaptive management techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guidelines for mapping seabed habitats and resources in the Area</td>
</tr>
</tbody>
</table>
Survey Deploy Monitor –

Risk-based approach for taking forward wave and tidal energy proposals, designed to enable novel technologies to be deployed in a manner that will simultaneously reduce scientific uncertainty over time whilst enabling a level of activity that is proportionate to the risks

Used for offshore wave and tidal devices, but applications to other industries
Guidelines: Adaptive management – SDM policy in Scotland

- **Pre-consent survey**
  - Environmental sensitivities (mapping)
  - Scale of development
  - Technology used

- **LMH matrix**
  - High: 2 years site characterisation
  - Medium: 2 years site characterisation (but may reduce)
  - Low: May fast-track 1 year site characterisation

- **Deploy**
  - Larger scale / high risk projects
  - Phased development needed

- **Agree practical assessment criteria**
  - Start at small scale
  - Intensive monitoring to provide EIA validation
  - Approve further work if models proved reliable / impact risks identified

- **Monitor**
  - Project specific; feedback into future applications
Guidelines: Adaptive management

Deep sea mining use

- Adaptive management allows for testing of EIA assumptions and validation of EIA conclusions
  - in the UK, all offshore windfarms have to provide noise results for their first 4 piles before proceeding to further noisy activities
  - how to apply this feedback process to a front-loaded capital intensive industry?

- Allows for the use of novel technologies etc by providing a route for risk reduction during operations or between contracts
  - but requires management responsiveness to create change
**Guidelines: EIA frameworks**

<table>
<thead>
<tr>
<th>Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guidelines for environmental impact assessment and preparation of an environmental impact statement</td>
</tr>
<tr>
<td>Guidelines for the development and application of environmental management systems</td>
</tr>
<tr>
<td>Guidelines for the preparation of scoping reports</td>
</tr>
</tbody>
</table>
Guidelines: EIA frameworks

Adequacy of information provided – can a science-based opinion be concluded on risk and impact?

The basics
• Maps
• Numbers don’t add up
• References missed out

More advanced
• Potentially important impacts screened out and then have to be reinserted
• Detail provided on receptors that aren’t affected by the operations
• Are conclusions using best available evidence?
• Use of old evidence
• Use of non-site specific evidence
• Use of inappropriate impact matrices

Guideline requirements
• Early consultation (around scoping) on what the EIA needs to focus on
• Early consultation to agree evidence sources
• High quality QA before submission
Guidelines: EIA frameworks

Amount of information provided

EIA reports can overwhelm with information
- Dogger Bank windfarm EIA consisted of 17 lever arch files
- Hornsea 3 windfarm had 14685 pages accepted into the examination post EIA submission

Guideline requirements
- Documents focussed on consenting issues / large scale impacts
- Refer to information in other published documents
- Expectations of time needed to review documentation compared to contracting timetable
Guidelines: EIA frameworks

Communicating risk
Uncertainty in evidence and uncertainty in conclusion should be clearly stated

Guideline requirements
- Need to provide understanding of uncertainty through the process
- Uncertainty Assessment?
- Uncertainty levels appropriate for metrics and indicators
Guidelines: EIA frameworks

Sharing risk

- Operator input through questionnaire and commenting on drafts
- Regulator input on steering group

Positives
- Rounded view on environmental appraisal
- Agreed among all major stakeholders

Challenges
- Commerciality of result
- Complementary to regulator guidelines; fully aligned but not official
Guidelines: Thresholds and indicators

Guidelines (generic) for a risk-based approach to the development and assessment of environmental thresholds and indicators
Guidelines: Thresholds and indicators

- Management thresholds are naturally attractive to decision-makers as they can offer a clear-cut, evidence-based process to decide whether damage will / will not occur to an ecosystem or area.

- Management thresholds can also offer false security if they are arbitrary, have no valid biological basis, or not designed for the management regime.
Guidelines: Thresholds and indicators

1. Before initiation of EA

UK oil and gas –
• operations that need EIA are noted in the Petroleum Act
• operations expecting greater than 500 tonnes of oil per day or more than 500,000 m3 of gas per day

How would this apply to deep sea mining ...?
• EIA needed for testing of mining equipment, test-mining operations and commercial-scale mining
• material changes to a project? How are these defined?
  • timescale
  • footprint
  • severity of impacts
  • change to methods
• Will smaller-scale changes require an EIA Direction / EIA addendum?
Guidelines: Thresholds and indicators

2. Within EA (and as validation for ES)

- Modelling
- Responsiveness
- Risks
- Site size
- Cost
- Definitions
- Natural variation
- Statistical significance
- Lack of evidence / time series
Risk-based regulation: conclusions from UK experience

• Risk is found throughout assessment and regulation

• Risk can be lowered through
  • Narrowing down options as evidence becomes available / plans become firmer
  • Adaptive management to validate assumptions and provide a means of
  • using robust evidence base spatially and temporally
  • using agreed definitions
  • stakeholder input
  • transparency of process
  • responsiveness of management regime
Risk-based regulation: conclusions from UK experience

For deep-sea mining, major issues to consider include

- Responsiveness of management regime
  - Adaptive management
  - Starting point for measuring serious harm / adverse effect
- Transparency of process
- Dealing with uncertainty
  - Need for baseline validation
  - Time series availability?
  - Evidence *required* for consent