# STEP 2

## Proposal of common Ranking approach based on BRISK

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# 'Best practice' in ranking approaches

(Ranking → *strategic* mapping)

<u>TWO APPROACHES</u>:

1. 'Calculation' of sensitivity Scores ('model')
   - Scores calculated as product of factor values (NO)
   - Scores calculated using quantitative dataset (GE)

☺ 'Objective' approach

☹ Not always easy to 'understand' a Score

# 'Best practice' in Ranking approaches

## 2. 'Expert evaluation' of sensitivity score (e.g. BRISK)

☹ More 'subjective' ('rough') approach

☹ Not scientifically 'ideal'

☺ Qualitative/subjective approach not necessarily 'less good'

☺ Simple and easy to understand, transparent

☺ Facilitates national expert validation of assigned Scores

**More appropriate for use at Regional level**

# BRISK Vulnerability Ranking

- **4 Scores:**
  - Score 4 = **VERY HIGH**
  - Score 3 = **HIGH**
  - Score 2 = **MODERATE**
  - Score 1 = **LOW**
- **4 Seasons:**
  - **Winter**: Dec., Jan., Feb.
  - **Spring**: Mar., Apr., May
  - **Summer**: Jun., Jul., Aug.
  - **Autumn**: Sept., Oct., Nov.

*Proposal MUMM → apply in BE-AWARE*

# BRISK Ranking process for each feature

1. Define (ecol.) characteristics, significance & location
2. (Qualitative) assessment of vulnerability
   - Based on 2 criteria:
     - FATE OF OIL
     - IMPACT OF OIL on organisms
3. Assign vulnerability ranking (per season)

*Proposal MUMM → apply in BE-AWARE, but adapt:*

- *+ "3D" vulnerability*
- *+ 'Socio-economic' evaluation (and criteria)*

# Criteria to be considered when ranking each feature

## (1) FATE of oil

- In terms of oil weathering, degradation and removal
- Varies considerably
- Influences geomorphological, ecological and socio-econ. vulnerability
- Main factors:
  - Wave/tidal energy exposure — Shoreline slope — Substrate type

  → *incl. Artificial substrates: e.g. marinas & ports*

  → *"3D" fate in water column/seabed*
  - *Natural energy*
  - *Dilution potential*
  - *Seafloor sediment type*

~ EXPOSURE & *(chemical)* RECOVERY

# Criteria to be considered when ranking each feature

## (2) IMPACT of oil on organisms/habitats

- Effects of oil on organisms
  - Smothering
  - Toxicity
  - Tainting
- Population & life-cycle considerations
  - Densely populated (small) areas
  - Spawning & nursery areas (~fish)
  - Sensitive stages/locations (~birds)
  - Threatened species & habitats, …

~ *ECOL.* OIL-SENSITIVITY & (*biological*) RECOVERY

# MUMM: Suggestion of 3 additional Socio-Econ. Criteria

## (3) Length of Interruption

- (!) Criteria used in France for socio-economic Index (***Cedre***)
- Why? Practical Criteria to evaluate socio-economic impact, based on length of interruption of an activity or service
- Important factors:
  - Possibility (or not) to **protect** activity
  - Possibility (or not) to **displace** activity
- 5 Ranks:
  - 1 (day) – 2 (week) – 3 (week-months) – 4 (to 1yr) – 5 (> 1yr)

**~ 'SOCIO-ECONOMIC' OIL-SENSITIVITY**

# (Additional socio-econ. Criteria)

## (4) Compensation Possibility

- (!) A key assessment Factor in Norway (***MOB-method***)
- Why? Easy-to-use Criteria that is important when comparing Economic *versus* Social & Ecologic sensitivity
- Compensation can be seen as '*recovery*' from economic losses
  - *Can be considered as Correction factor*

~ '*Economic*' RECOVERY

# (MOB-method) (Norway; DNV; Safety@Sea)

- Environmental resources are assessed based on 4 Factors
  - I - Natural occurrence (Is the resource part of natural system in the area?)
  - II - Compensation (Can the resource be economically compensated?)
  - III - Conservation Value (Environmental value of the resource?)
  - IV - Sensitivity: (Sensitivity towards oil? – *incl. recovery*)

- Ranking of ecological and socio-economic features combined
  - Apart from ecological features, also
  - Recreational activities
  - Industries based on natural resources

# (MOB-method)

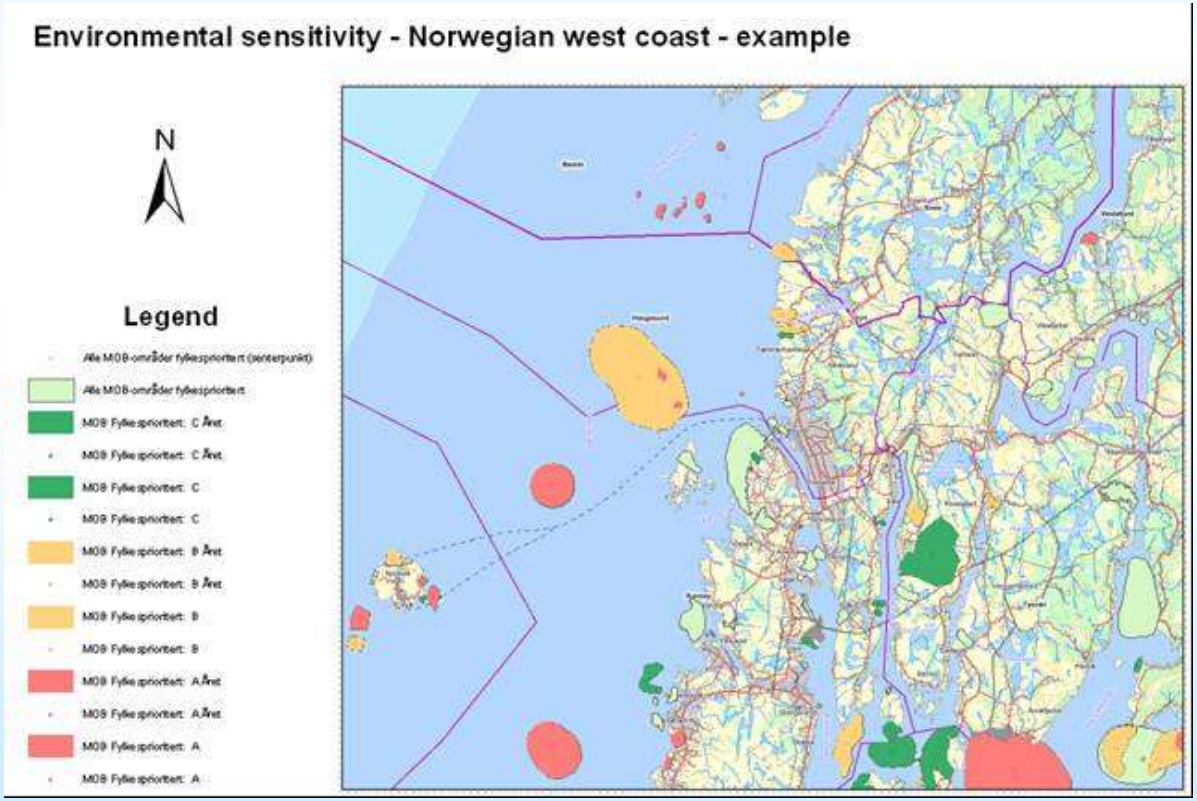
| Evaluation | | Factor value | | | |
|---|---|---|---|---|---|
| | | 3 | 2 | 1 | 0 |
| Natural occurrence | I | - | Yes | No | - |
| Can be compensated economically | II | - | No | Yes | - |
| Conservation value | III | National/International | Regional | Local | Insignificant |
| General sensitivity to oil | IV | High | Medium | Low | Insignificant |

- The level of priority, is calculated with formula:
  - $P=V_I \times V_{II} \times V_{III} \times V_{IV}$

| | Priority | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| Model result | 36 | 24 (18) | 12 (9) | 8 4 (6) | 2 1 (3) |

# (MOB-method)

| | Priority | | | | |
|---|---|---|---|---|---|
| | **A** | **B** | **C** | **D** | **E** |
| Model result | 36 | 24 | 12 | 8 | 2 |
| | | (18) | (9) | 4 | 1 |
| | | | | (6) | (3) |



# (additional socio-econ. Criteria)

## (5) Social nuisance

- (!) Term used by ITOPF to describe social impact
- Why? MUMM felt need of '***social sensitivity***' Criteria
- Criteria to assess:
  - Public concerns about spill-impacted area
  - Public health issues
- Is factor of:
  - Coastal population densities
  - Degree of communities/activities based on natural resources
  - Impact on Sites with high ecological or heritage value

~ 'Social' SENSITIVITY

# STEP 2 – SUMMARY

## PROPOSED RANKING PROCESS FOR EACH FEATURE:

**(1) Define characteristics, significance & location**

**(1) Assess vulnerability, taking into account 5 Criteria:**

1. FATE OF OIL (~exposure; chemical recovery)
2. IMPACT OF OIL (~ ecological sensitivity; biological recovery)

*(+ 3 additional socio-economic criteria)*

3. LENGTH OF INTERRUPTION (~ socio-economic sensitivity)
4. COMPENSATION (~economic recovery)
5. SOCIAL NUISANCE (~social sensitivity)

**(1) Assign vulnerability ranking (per season)**

# And now time for discussion…

☺