Oceanographic cruises &
Acoustic Risks to Marine Mammals
How to improve & mutualize clearance procedures?

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Recorded Events:

- Several MM group-stranding (from the 90’s) linked to naval exercises w/MFA sonar (Mediterranean, Bahamas…)
- One event (California, 2002): dubious link w/ a seismic survey
- One mass-stranding (Madagascar, 2008): dubious link w/ a multibeam survey

Sensitive issues: NGOs pressures
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NGOs pressures

CODES OF CONDUCT OR GUIDELINES
REGULATIONS & GUIDELINES

• **Self regulation:**
  Navies, industrials (GoM), Research Vessels (NOAA/NMFS, IFREMER) etc.

• **National regulation:**
  to ensure as far as possible that animals are **not exposed to high levels** of sound prone to **cause injury.**
  
  ➞ Similar series of mitigation measures
  ➞ With various levels of requirement

• In national waters ➞ local rules to be applied when existing
• In international waters or non-regulated national waters ➞ how to manage this issue?

• **Operational constraints:** (navigation, nb on board, etc)
to ensure as far as possible that animals are not exposed to high levels of sound prone to cause injury.

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  - National regulation: to ensure as far as possible that animals are not exposed to high levels of sound.
    - Self regulation:
    - National regulation:
      - Local rules to be applied when existing
      - How to manage this issue?

- Operational constraints: (navigation, nb on board, etc)
Legal context in France

French national regulation = a Decree stating the **protection of MMs** *(Arrêté du 1er juillet 2011)*

- States the interdiction of killing/wounding animals & their habitats, etc, & lists the species concerned

An unsatisfactory situation: the rules of the game are unclear

- **Volunteer application** of self-regulations: Navy, oil industry…
- Ifremer had to define its **own code of conduct**
- **Difficulties in practical risk assessment** & cruise organization
- Preliminary contact taken recently (2014) with the concerned Departments (Environment, Research…) in view of building a practical applicable regulation

EU: Directive 2014/52/UE – April 2014:

- Gives **no practical constraints** in terms of objective quantified requirements
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• Gives no practical constraints in terms of objective quantified requirements
Preliminary risk analysis of the cruise application:

- Avoid sensitive areas & biologically key periods
- Quantify objective exposure risks
- Provide recommendations

Risk analysis:

- Analysis of the operational context
  - Source characteristics
  - Animal species and repartition
- Modelling of the sound source radiation
- Comparison with currently admitted thresholds
- Determination of a safety radius (= exclusion zone)

Depending on results ➔ mitigation procedures (Y/N)
Ifremer Protocol – Mitigation measures

- **Marine Mammal Observers**: 2/4 qualified independent operators

- **Pre-watch** (at least 30 min) before starting

- **Ramp-up** (=“soft-start” : gradual power increase)
  - 30 to 45 min, depending on the source

- During operation, **visual monitoring** within the exclusion area (safety radius, typically 500 m):
  - When marine mammals are observed within this area: **Shut-down**
  - After a shut-down: pre-watch & soft-start

- More recently: **Passive Acoustic Monitoring**
  - For High-power seismic sources
  - Operated at night-time

- **Report** of observations and incidents, to be written by MMOs
Ifremer self-regulation: Results/Assessment

~30 seismic cruises (out of 50 applied)

No major events

• No MM stranding – not even significant reactions observed
• No serious conflicts with scientists, crews, MMOs
• A few frictions with local authorities & NGOs

Actual impact on cruises

• ➔ Minor for scientific operations (TECTA: 10% no acquisition)
• ➔ Significant for administrative procedures
  • Increase of complexity in authorization procedures
  • Delays in diplomatic procedures and authorization delivery

Practical difficulties met in cruise preparation:

• Finding qualified/available MMOs
• Extra-cost – supported by applicants
• Main difficulty met = lack of clear regulation!!!

450 € /day/ MMO
VS
< 280 € /day/ MMO…
More and more protected areas, sanctuaries…

Protected areas: often without a clear regulation

- Local regulation fixed by local authorities without technical background
- Possibly irrelevant/inapplicable recommendations

Changes in requirement levels:

- Physiological risk control = not sufficient any more
- Control of behavioral changes now expected …
- Not only seismic sources: now echosounders …

Evolution of the scientific background to regulation: thresholds updated, …
Towards an OFEG CoC?

A dedicated working group of specialists from the OFEG members

A common approach for a better management of acoustic risks to MMs & Improvement of Permit requests & at-sea operation procedures
Suggestions…

• Sharing relevant information:
  - Follow-up, interpretation and conclusions of current trials & studies about impact of acoustic equipment on marine life
  - Sonar performance modelling
  - Mitigation measures: description, operational issues, results, …
  - Authorisation procedures
  - At-sea observation reports

• Agreement on an appropriate Code of Conduct / Protocol?
  - Mutualized solutions and procedures for mitigation
  - Agreement on sound sources to be considered
  - Common access to MMs data
  - A common management of MMO & PAM Operators
For discussion…

Thanks!
Any questions?
Despite their common objective - trying to limit the potential adverse impacts - regulations may significantly vary from one country to another.