

Oceanographic cruises & Acoustic Risks to Marine Mammals

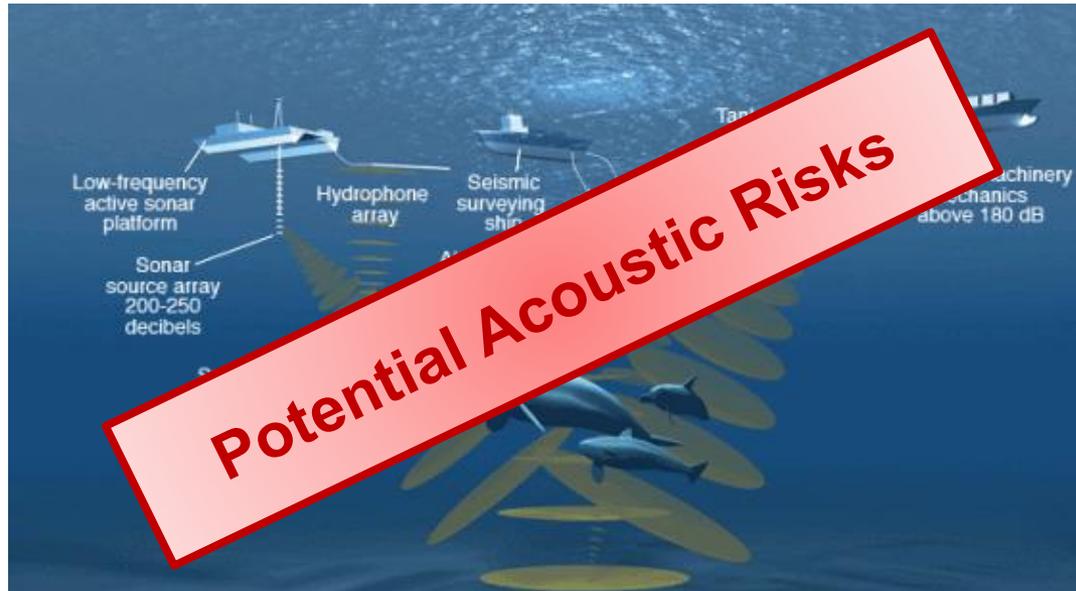
How to improve & mutualize clearance procedures?



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CONTEXT



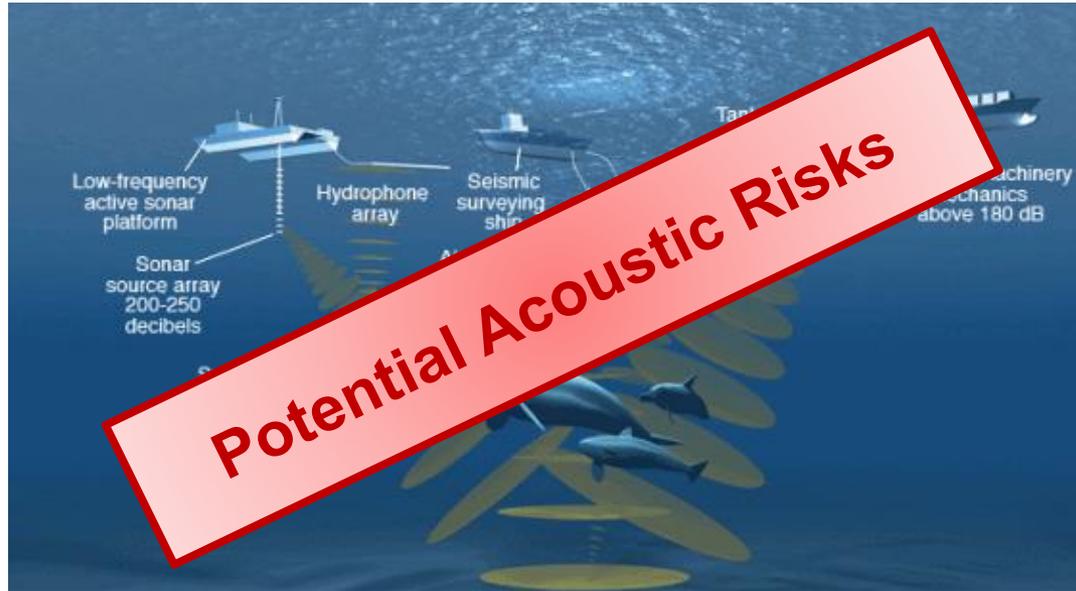
Recorded Events:

- 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



CONTEXT



Recorded Events:



Ship-stranding (from the 90's) linked to naval sonar (Mediterranean, Bahamas...)
California, 2002): dubious link w/ a seismic survey
ding (Madagascar, 2008) dubious link w/ a
NGOs pressures

**CODES OF CONDUCT
OR
GUIDELINES**

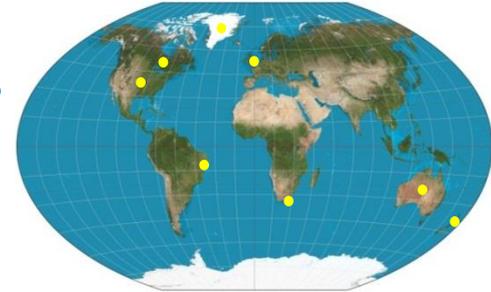


REGULATIONS & GUIDELINES



- **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?**

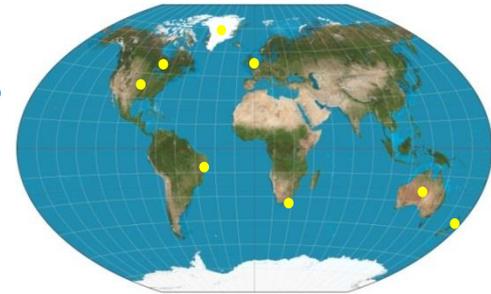
- **Operational constraints :** (navigation, nb on board, etc)

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 level**

- ➔ Sim
- ➔ Wit

Coupled with authorization procedures to obtain permit to work at sea

- 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)

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

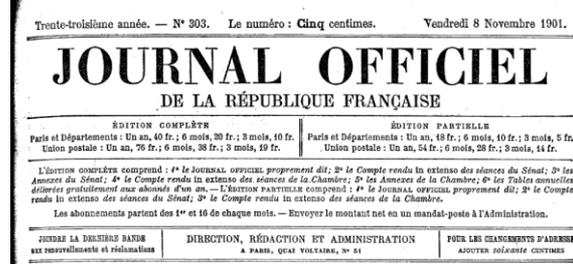
An unsatisfactory situation: the rules of the game are unclear

- ➔ **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

Legal context in France



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25.4.2014

EN

Official Journal of the European Union

L 124/3

- (11) The measures taken to avoid, prevent, reduce and, if possible, offset significant adverse effects on the environment, in particular on species and habitats protected under Council Directive 92/43/EEC ⁽¹⁾ and Directive 2009/147/EC of the European Parliament and of the Council ⁽²⁾, should contribute to avoiding any deterioration in the quality of the environment and any net loss of biodiversity, in accordance with the Union's commitments in the context of the Convention and the objectives and actions of the Union Biodiversity Strategy up to 2020 laid down in the Commission Communication of 3 May 2011 entitled 'Our life insurance, our natural capital: an EU biodiversity strategy to 2020'.
- (12) With a view to ensuring a high level of protection of the marine environment, especially species and habitats, environmental impact assessment and screening procedures for projects in the marine environment should take into account the characteristics of those projects with particular regard to the technologies used (for example seismic surveys using active sonars). For this purpose, the requirements of Directive 2013/30/EU of the European Parliament and of the Council ⁽³⁾ could also facilitate the implementation of the requirements of this Directive.

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

- Gives **no practical constraints** in terms of objective quantified requirements

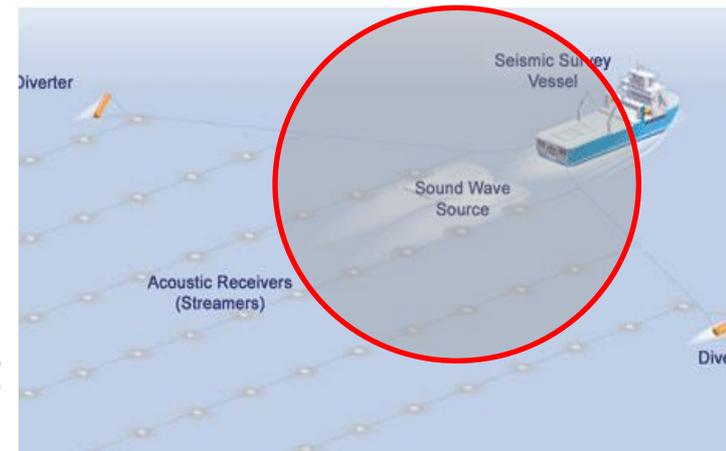
Ifremer Protocol: Limited to Seismic sources & MMs

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



Offremer 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...

Context Evolution

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:

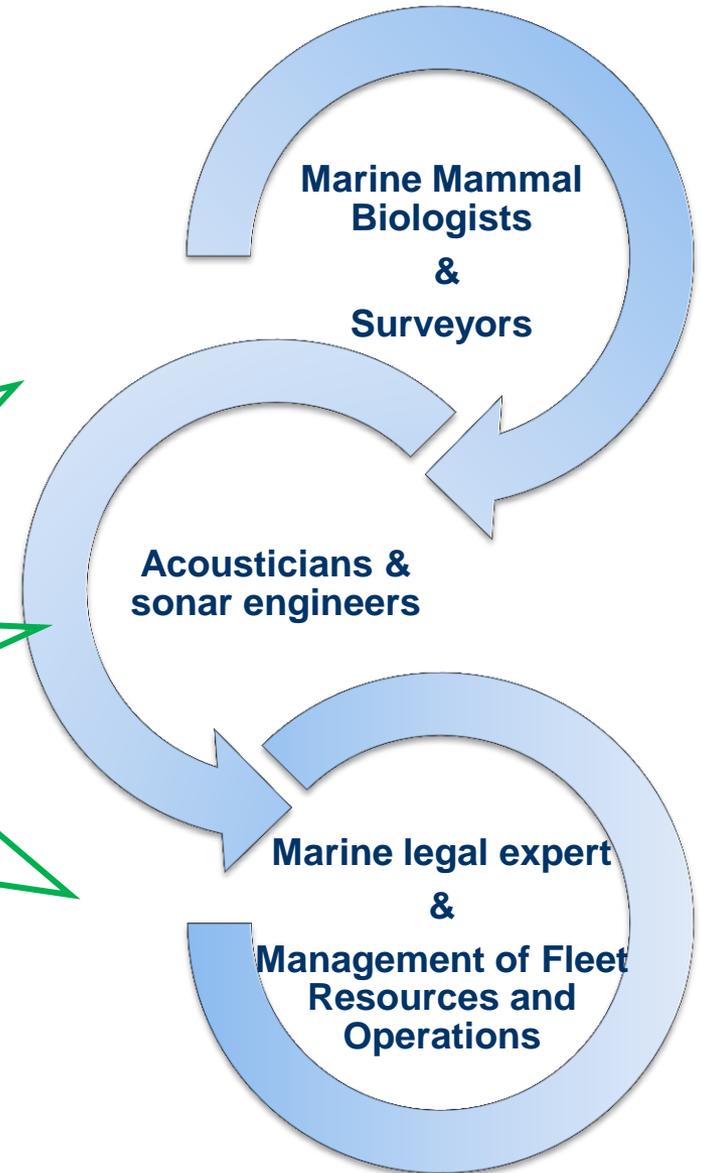
- Physiological risk control = not sufficient any more
- Control of **behavioral changes** now expected ...
- Not only seismic sources : now **echosounders** ...

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 ?



Area	Marine Mammals species covered	PAM	Monitoring Zone	Pre-watch	Soft-start	Shut down
ACCOBAM	all	Yes 24h	Beaked Whales unlimited, 500 m for all other marine mammals	120 min for beaked whales 30 min for others	Yes	Yes
USA California	all	No	180 dB radius	30 min	Yes at a rate of 6 dB per min	Yes
USA GoM	all	No	500 m	30 min	Yes	Yes for whale species
Australia	Baleen whales & larger toothed whales	If possible	3 km for observation, 1-2	30 min	Yes for 30 min	Power Down & Shut Down

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

Canada	All marine mammals threatened or endangered on species at risk Act & cetaceans and turtles	Yes	500 m	30 min	Yes	Yes
Ireland	All	Not specified	1000 m	30 min < 200 m 60 min > 200 m	Yes 20-40 min	No
New Zealand	All	L1 yes, L2 optional	1.5 km – 200 m depending on species/survey*		Yes 20-40 min	Yes
UK	all	If possible	500 m	30 min < 200 m 60 min > 200 m	Yes 20-40 min	No
IAGC	all	Not specified	500 m	30 min	Yes	No