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# **Regulatory frameworks on man-made sound and marine mammals in Latin America with a focus on seismic activities in Brazil**

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# CONTEXT

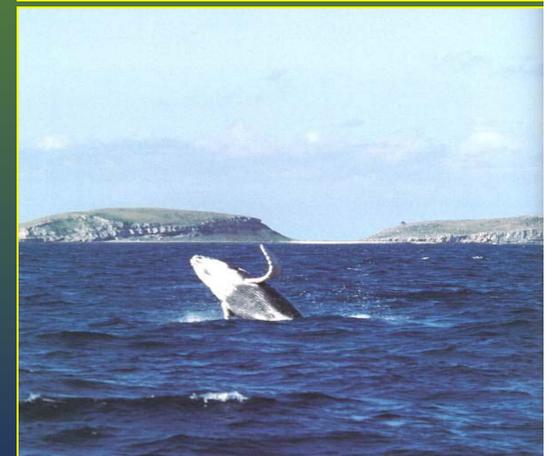
- Region's profile on regulatory frameworks regarding marine mammal protection and man-made sound
- Approaches and gaps to regulations on man-made sound
- Insights on progress and limitations: the case of seismic activities in Brazil

# THE REGION

- Defined broadly (South and Central America, Caribbean and Mexico)

- Rich in tropical coastal ecosystems

- Wide range of marine mammals



# REGULATORY FRAMEWORKS

## *Multilateral agreements:*

**IWC** International Whaling Commission Convention

**CMS** Convention on the Conservation of Migratory Species of Wild animals

**CBD** Convention on Biological Diversity

**CITES** Convention on International Trade in Endangered Species of Wild Flora and Fauna

**UNCLOS** United Nations Convention on the Law of the Sea

**MARPOL** International Convention for the Prevention of Pollution from Ships

# REGULATORY FRAMEWORKS

## *Regional Agreements:*

UNEP Regional Seas Conventions and Associated Protocols on Specially Protected Areas and Wildlife

## *National legislation: Laws, Resolutions and Decrees*

- Regulation of activities within the marine environment
- Protected Areas Systems
- Protection of endemic or threatened species

# REGULATORY INSTRUMENTS

## *Guidelines, Directives and Action Plans:*

### Marine Mammals

- Interactions and Watching: Whale, dolphins and manatees
- National and Regional Action Plans

### Marine Activities

- Environment Impact Assessment
- Licensing Guidelines
- Environmental Management Plans

# APPROACHES: SUMMARY

*Institutional:* Mining and Energy vs. Environment agencies, and NGOs

*Legal:* species and protected areas & conciliation with regulations addressing main sources: marine traffic & seismic surveys(oil and gas)

*Gaps:*

- little awareness of impacts of man-made noise;
- incipient mitigation measures; increase dialogue among parties
- limited capacity for monitoring of approved projects, enforcement and evaluation of effectiveness of regulations

*Poster Session: More information from the region*

# LICENSING SEISMIC ACTIVITIES IN BRAZIL

## *The beginning (1999)*

- limited and non-specific technical body at IBAMA-  
Brazilian Environment Agency
- lack of solid and specific guidelines

## *Today (2004)*

- increased number of licenses since 2002
- improvement on prevention and mitigation of effects
- stronger guidelines and regulation by CONAMA-  
National Environment Council, Resolution 305(July  
2004) on seismic activities

# REGULATION AND MITIGATION

## How did we get here?

### *The Process*

- International review of literature and practices
- IBAMA produced thematic maps regarding the vulnerability of marine resources and socio-economical aspects
- Consultations among: Government (Licensing Office and Aquatic Mammal Center); Industry (5 companies); and local communities and academia.

### *Outcomes*

- Identified areas and marine resources of great environmental significance and corresponding licensing requirements
- Critical areas: e.g. Abrolhos Bank, shallow waters (<60m)

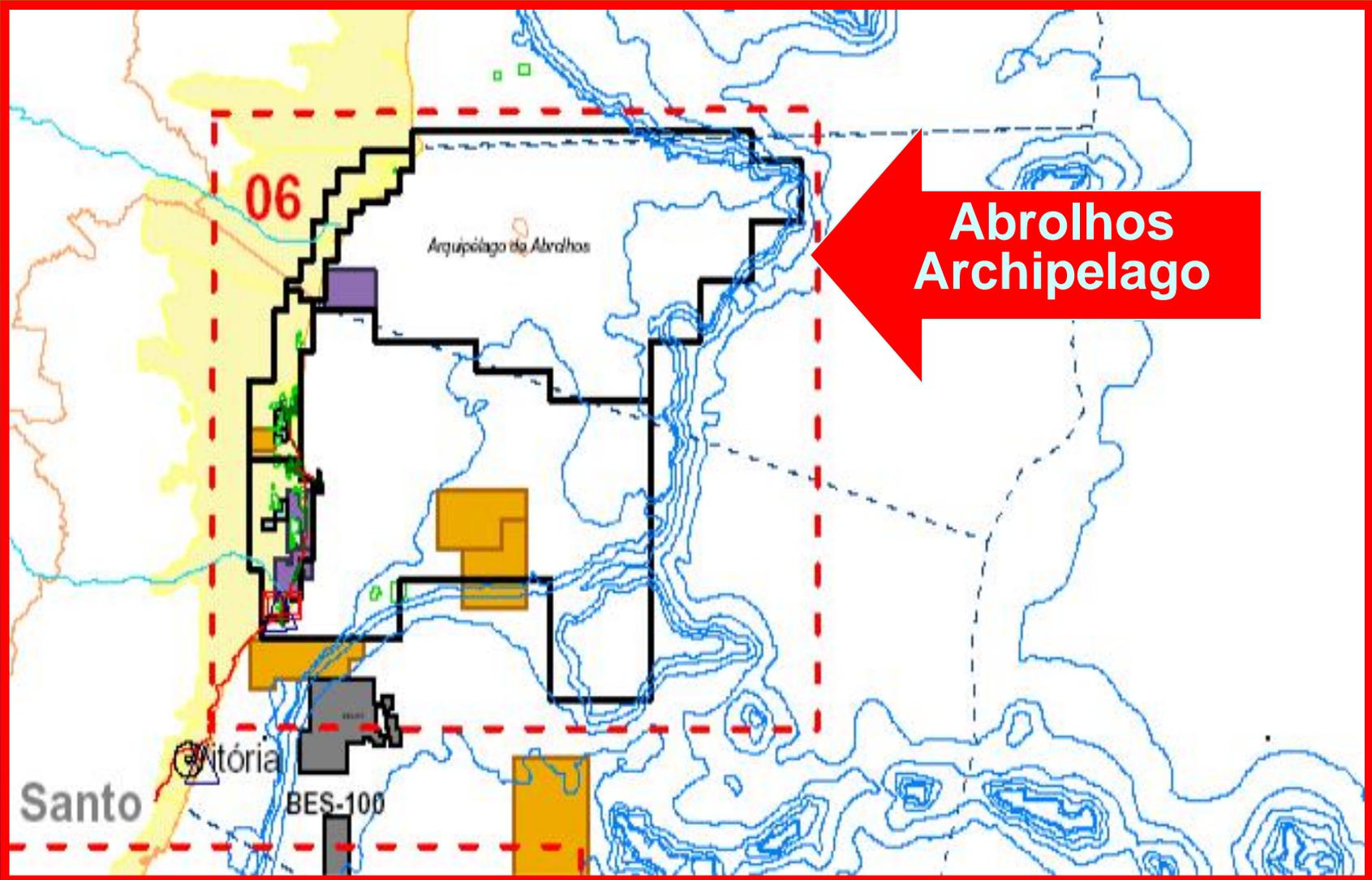
# MITIGATION MEASURES

## *Seismic Activities*

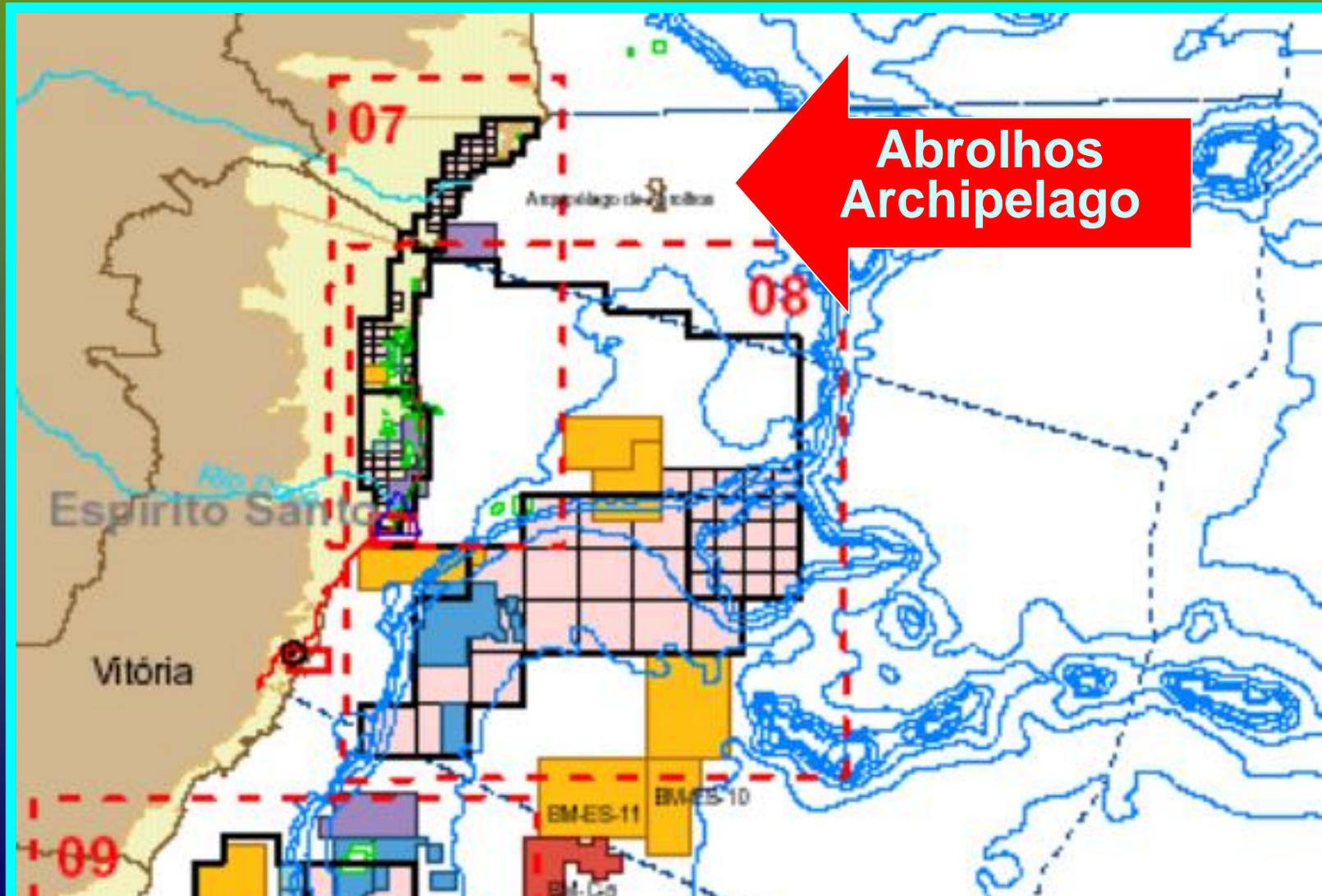
- MM Observers: 2 on board vessels during daylight; twice/day beach monitoring by licensed veterinarian
- Soft start airgun array (min. 20min)
- 500m exclusion zone
- Exclusion of seismic surveys during breeding season of humpback whales (July-November)
- Exclusion of blocks from bids in critical areas for humpback and right whales and manatees (*T. manatus*)



# BRAZIL ROUND 5



# BRAZIL ROUND 6



# BARRIERS

- Little systematic data on reactions to seismic activities (sighting rates, behaviour response)
- Lack of consolidated data; no standard forms or database
- No evaluation of cumulative effects of multiple operations
- Insufficient control and evaluation of mitigation measures

# LESSONS LEARNED

- Potential tool for improving knowledge of marine mammals

*Species observed:* Fin, Sei, Minke, Humpback and Sperm Whales; Dolphins and manatees

*References:* Engel et al. (2004); Parente et al. (2004); Luna et al. (2004); Moreira Sergio et al. (2004)

- Flexibility in drafting regulations and adjusting mitigation measures; further acoustic monitoring being considered
- Mobilization and dialogue among parties is crucial to sustain sound environmental practices and management of marine mammals