How the Gully MPA is Managed for Underwater Noise

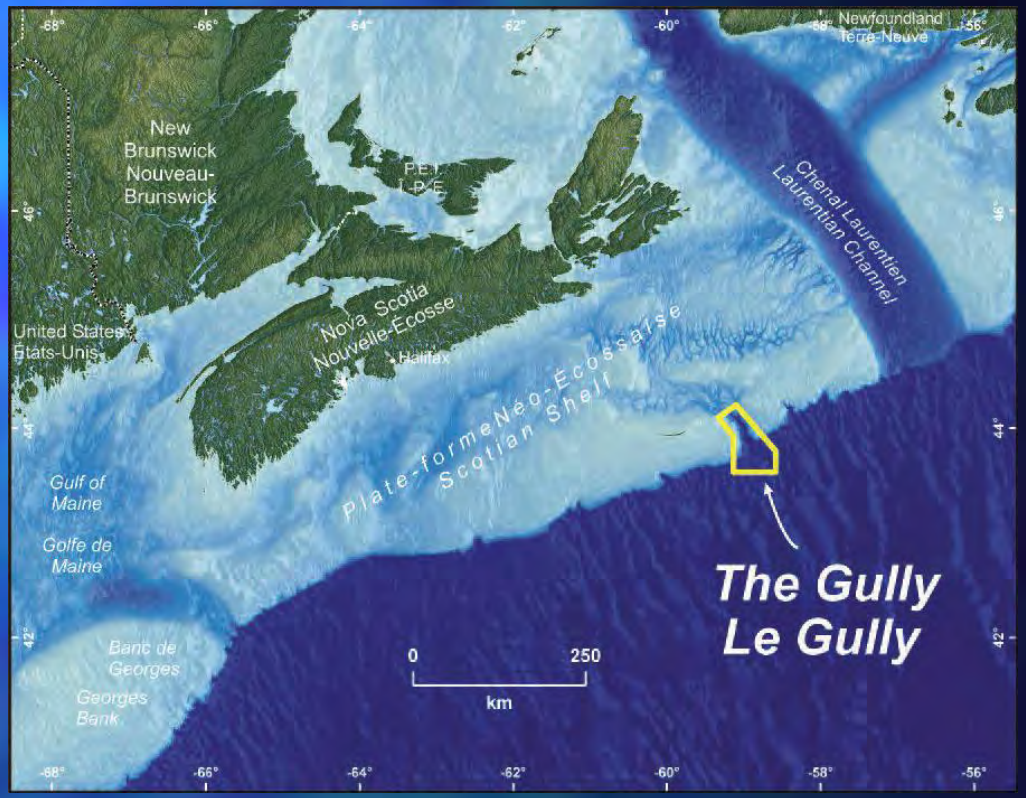
Lindy Weilgart

DALHOUSIE UNIVERSITY

FOUNDATION FOR THE SEA
okeanos

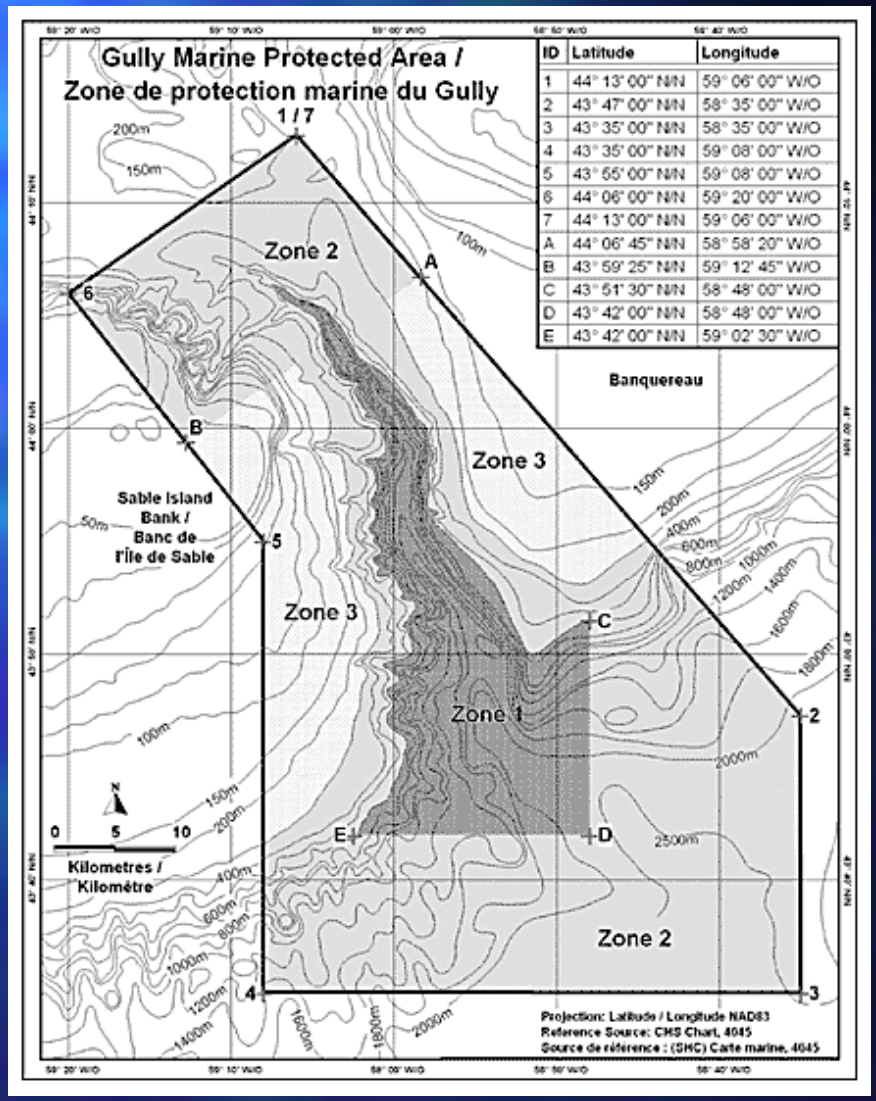
The Gully

- Largest submarine canyon in eastern NA
- 200 km SE of NS near Sable Is.



The Gully

- 65 km long
- 15 km wide
- 2,500 m depth at the mouth



The Gully

- Key habitat for the northern bottlenose whales
- Resident year-round
- 130 individuals
- In 2002, listed as endangered

Management for Noise in MPAs:

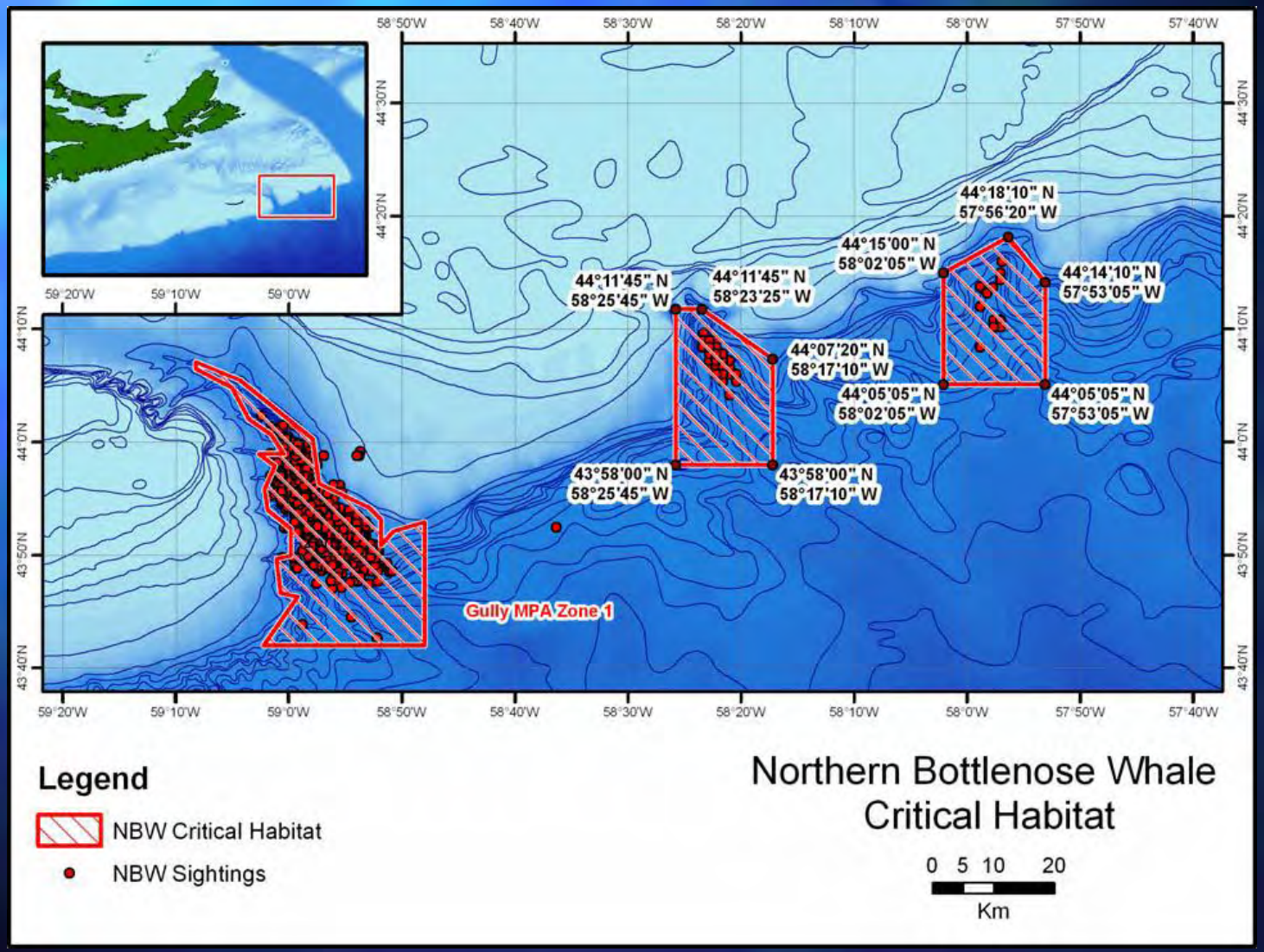
- **Characteristics of noise** *(loudness, frequency, duration, duty cycle, sharp onset, directionality, unpredictability)*
- **Noise-sensitivity of species** *(e.g. beaked whales)*
- **Critical habitat** *(e.g. breeding, feeding)*
- **Residency of species**
- **Conservation status of species**

Critical habitat of noise-sensitive, resident, endangered species threatened presently or in future by noise

The Gully MPA Timeline

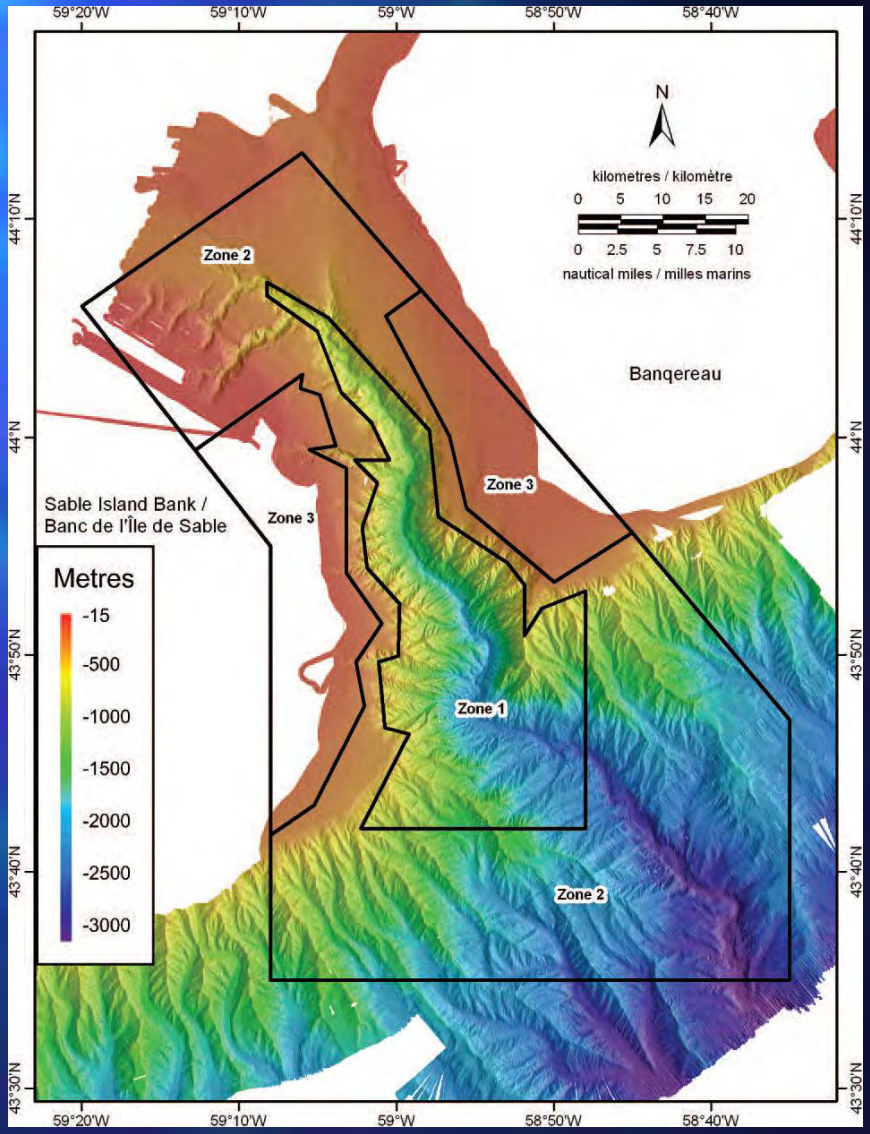
- 1988 – Whitehead lab starts studying NBW
- 1990 – LASMO tanker exclusion zone
- 1994 – DFO Gully Whale Sanctuary (Notice to Mariners)
- 1998 – 10 km buffer for seismic recommended
- 2002 – NBW listed as endangered, 2011
- 2004 – Regs establishing MPA
  - 8 yrs. after Oceans Act passed (1996)
  - Other Canadian MPAs 17+ yrs. to establish
  - Average 5-7 yrs.
- 2010 – Gully, Shortland, Haldimand canyons critical habitat for NBW under SARA (listed 2006)

NBW Critical Habitat



The Gully MPA

- 2,364 sq km
- 3 mgmt zones:
  - 1: no extraction
  - 2: no net or mobile fishing gear
  - 3: commercial activities allowed, case-by-case
  - Hook-and-line fishing allowed for 2 & 3



The Gully MPA

Not allowed to:

- Disturb, damage, or destroy or remove from it, any living marine organism or any part of its habitat;
- Or any part of the seabed including the subsoil to a depth of 15 m;
- Or carry out any activity in the MPA *or in its vicinity* that is likely to result in the disturbance, damage or destruction of a living marine organism, or its habitat or the seabed.

Exceptions

- Government search & rescue, enforcement, military

  - No expendable probes, live fire, depth charges, sonar broadcasts
  - voluntary compliance by military

Marine Scientific Research

- Canadian scientists must prepare assessment of env. impacts
- Prove activities will cause minimal disturbance
- Multi-stakeholder Gully Advisory Ctte evaluates and reviews
- Approval by Minister of Fisheries & Oceans
- Foreign scientists apply through Foreign Affairs but still must follow Gully regs

Ship Transit

- MPA outside 12 nm,
  no jurisdiction, no sanctions
- Voluntary compliance,
  Notice to Mariners, avoid,
  slow down, post watch

- Innocent passage only; once use bow-thrusters or otherwise, regs apply
- For ATBA or PSSA thru IMO would have to do risk analysis
- Get class of vessels thru security data (LRIT) from Navy and Coast Guard (out to 1000 nm)

Oil and Gas

- Gully regs don't expressly prohibit activity
- CNSOPB: NO exploration, production, release of land, call for bids, nomination of parcels
- Voluntary restrictions on vessel and air traffic thru MPA by oil companies
- Transboundary effects more of a problem

Vicinity Clause

- Jurisdiction beyond boundaries
- > 140 dB rms in Gully (10-20 km) would require more mitigation, acoustic modelling, monitoring, etc.
- Highest level measured 145 dB rms at 50 km (90 m depth)
- Still increased LF background in Gully at 150 km

Size of MPA Required for Noise Management

- **For loud MF noise, >1,000 sq. km**
  - 64 of 350 MPAs
  - Most cetaceans
- **For loud LF noise, >10,000 sq. km**
  - 20 of 350 MPAs
  - 10 out of 350 MPAs >100,000 sq. km
  - Mainly baleen whales

(From Hoyt, 2011)

Monitoring

Use long-term passive acoustic monitoring of MPAs to:

- detect trends in cetacean distribution
- detect trends in noise
- study impacts of noise on cetaceans
- correlate noise levels with ecosystem and population health
- use acoustic diversity as proxy for biodiversity?
- help in enforcement/compliance

Gully Acoustic Monitoring

- Noise is used as one indicator for monitoring purposes
- Autonomous long-term recording
- Acoustic monitoring to 50 kHz throughout last few years

Strengths of Gully MPA

- Vicinity clause potentially powerful legal tool for transboundary threats
- MPA is within one of Canada's first large off-shore management areas (Eastern Scotian Shelf Integrated Management)
  - Multi-stakeholder planning process

Challenges of Gully MPA

- No provision in Oceans Act for buffer zones or MPA management plans
- No test of absolute power of Gully regs in courts; evidence necessary for prosecution?
- What constitutes disturbance?
- Vicinity clause--problems with interpretation, definition, application, enforcement
- Shipping?

THUS: Set precautionary limits in ADVANCE of activities; prevention

Further Questions

- Should oil and gas activities be explicitly prohibited in the Gully?
- Should Oceans Act be amended so buffer zones can be added?
- Should Gully be designated PSSA under IMO?
- Should integrated management plans have legally-binding regulations for ocean uses near MPAs?

Conclusions

- O & G exploration and exploitation in Gully prevented
- Scientific research and shipping restricted
- Greatest threats from activities (O&G) outside MPA boundaries?

Acknowledgements

- Paul Macnab, Gully Marine Protected Area Manager, Fisheries and Oceans Canada
- Dieter Paulmann, Okeanos Foundation

Reference:

VanderZwaag, D.L., and P. Macnab. 2011. Marine Protected Areas: Legal Framework for the Gully off the Coast of Nova Scotia (Canada). Gland, Switzerland: IUCN Env. Policy and Law Paper No. 81.