VIABILITY OF THE NORTHEAST ATLANTIC HARBOUR PORPOISE AND HARBOUR SEAL POPULATIONS
(GENETIC AND ECOLOGICAL STUDIES)

Duration of the project: 15/12/2003 – 30/04/2006
Budget: € 138.243
Keywords: Harbour Porpoise, Harbour Seal Population, North Sea, Marine Environment

CONTEXT

Marine mammals of the North Eastern Atlantic are all listed among vulnerable, declined, or threatened species by international directives. Among these species, the harbour porpoise (*Phocoena phocoena*) and the harbour seal (*Phoca vitulina*) are especially concerned due to their coastal distribution, in direct contact with shipping, fishing, and noise pollution and to its overall presence in reasonable number along the European coasts. Whereas some aspects such as the xenobiotic pollution are already largely studied, human impact is however hard to establish, mainly due to a blatant lack of information on marine mammals population ecology, density, distribution and diversity.

PROJECT DESCRIPTION

Objectives
This project aims to assess the viability of the harbour porpoise and harbour seal populations in the North Sea (focusing mainly on its southern Bay) through

1. the characterisation of their genetic structure and diversity
2. a better understanding of their feeding ecology
3. the assessment of their susceptibility of being trapped accidentally in fishing nets

Methodology
Following approaches will be considered to reach the objectives:

1. The genetic structure of these populations will be investigated using four complementary genetic markers: the D-loop region of the mtDNA, the microsatellite markers of the Y and of the autosomous chromosomes, and the Major Histocompatibility Complex (MHC).
2. The determination of stable carbon and nitrogen signatures ($\delta^{13}C$ and $\delta^{15}N$) in the muscles and blood of harbour porpoises and harbour seals will provide some further insights on their respective diets.
3. The susceptibility to incidental capture will be investigated by both post-mortem investigations and systematic inventory of carcasses in fishing nets.

Interactions between the different partners and expected results
These integrated results combined with those acquired previously on chemical pollution will provide a precise assessment of the harbour porpoise and harbour seal population status and their long-term viability facing various aspects of anthropogenic stress.

PARTNERS

Activities

1. The Laboratoire d'Océanologie (MARE Center, ULg) will perform $\delta^{13}C$ and $\delta^{15}N$ measurements in the muscles of marine mammals and will coordinate the present work. (Dr Krishna Das and Pr Jean-Marie Bouquegneau).

2. The genetic analyses are part of a doctoral research (PhD student: Michaël Fontaine) financed by the Fonds National pour la Recherche Scientifique (FNRS). This PhD thesis is realised in the Laboratory for Oceanology under the supervision of the Pr Jean-Marie Bouquegneau in collaboration with the Laboratory for Ecoethology and Zoogeography (Dr Johan Michaux, ULg)

3. The susceptibility to incidental capture will be studied by the Laboratorium voor Ecotoxicology en Polaire Ecologie van de VUB (Dr Ludo Holsbeek et Pr Claude Joiris, VUB) in collaboration with the Département de Pathologie Vétérinaire (Dr Thierry Jauniaux and Pr Freddy Coignoul, ULg).

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A publication of the Belgian Science policy
Wetenschapsstraat 8 Rue de la Science - B - 1000 Brussels
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September 2004