Persistent Organic Pollutants (POPs)

Anthropogenic toxins produced and used globally

- POPs reach polar regions by long-range atmospheric transport.
- In the Antarctic, POPs are taken up by phytoplankton and sea ice microbial communities (e.g. Chiuchiolo et al., 2003).
- POPs accumulate in organisms and biomagnify in higher trophic level animals.
- POPs can interfere with endocrine system function in animals and may adversely affect reproduction leading to population level effects.

Objectives

- establish baseline levels of POPs in Adélie penguin and south polar skua 1988-1990
- verify the use of non-lethal sampling techniques (e.g. collection of blood and preen oil) as surrogates for determining POP levels in seabird tissues
- compare POP levels within the various bird species based on migratory patterns and trophic level
- determine the presence and level of brominated diphenyl ethers (BDEs) in seabirds
- establish long-term trends for DDT residues in Adélie penguins

Expected results of this study:

- Help establish solid reasoning for policy change regarding pollutants currently produced and used in the U.S. such as BDEs
- To further understand the impacts of pollutants, such as DDT, on this fragile ecosystem
- Determine the global distribution and long-term trends of POPs

CFCs and DDT, well known POPs, have been phased out of use in some industrialized countries due to the environmental and human impact of these chemicals. We must continue to study the distribution and frequency of POPs in the environment, especially those currently in use, to pinpoint potentially dangerous levels of toxins.

References:


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