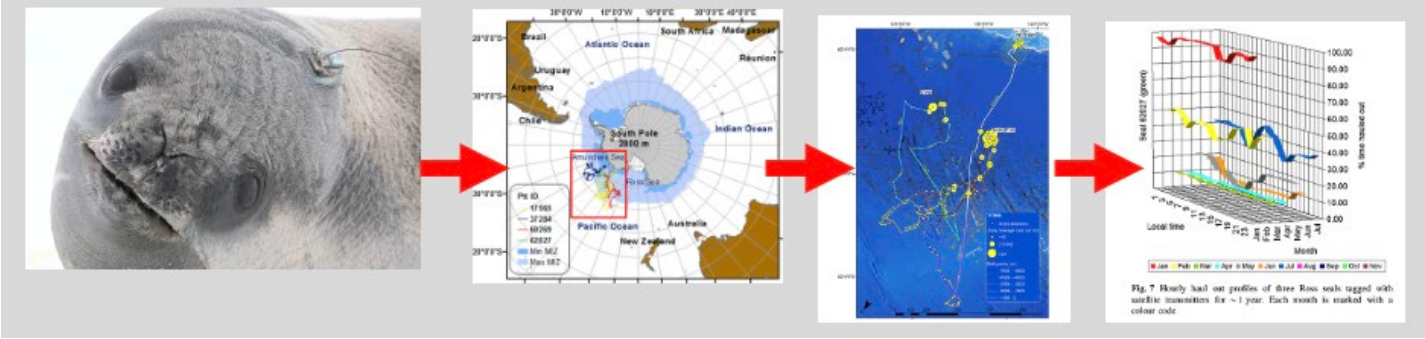
Pulse of the Weddell Sea
Marine mammals (WP 7)



Population dynamics of the Antarctic seals - variation linked to prey and climate.

Principal Investigator: Karin Hårding, Gothenburg University, marine ecology, population dynamics, theoretical biology

Co-PI: Eduardo Infantes, Gothenburg University, Digital environmental monitoring, marine mammal surveys

Participant(s): Darie Carroll, GU, marine mammal population dynamics, image analysis, modelling

Wilian Silva, marine mammal dynamic energy budget modelling, genetics

Jessica Harvey Carroll, molecular biology, health, behavioral ecology

Foteini Kappa, diet studies of marine mammals, predator-prey dynamics

Scientific hypotheses / Research questions

» How is the population dynamics of seals linked to fluxes in sea ice through the food web?

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» How tight is the energy budget of three different species of seals, recording diving depth and duration?

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» Provide predictions of how increased human fishery can affect the Antarctic ecosystem

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» Continue time series from previous expeditions on molecular biomarkers and pollutant exposure of Antarctic seals

Parameters measured within the project

- Diving behaviour of 30 seals equipped with satellite tags. Can send data for up to 8 months.
- Oceanographic data from Gliders and seal-borne CTDs
- Samples of blood, fur, nasal swabs for virology and toxicology. About 60 seals.
- Remotely assessed body condition of crabeater, Ross and Weddell Seals. About 200 seals.

Type of data collection

Field work on ice, catching sampling and tagging seals

Drone surveys from ship

Lab work with preserving and labelling samples

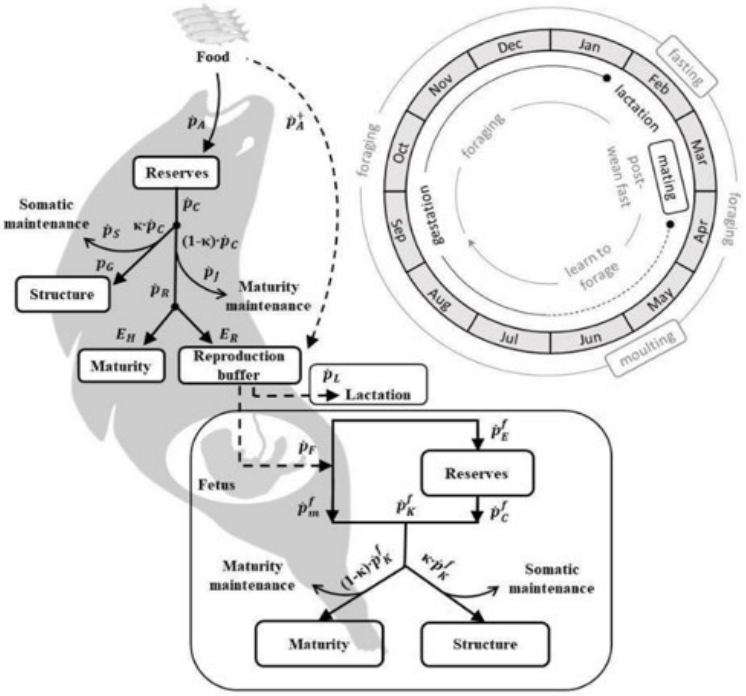
In collaboration with Bastien Queste et al. follow data from gliders

Continous data analysis of drone images

Sample analyses post-expedition; toxicology, fatty acids, virology, diving profiles

Dynamic Energy Model development

Ecosystem model development including annual climate fluxes



Logistic support requirements

Lab/Container for preparation and storage of samples

Helicopter transports for assess to groups of seals on the ice

Freezers, -20C and -80C

Room for 3-5 members