

# ELEPHANT SEALS OF SEA LION ISLAND

A LONG-TERM RESEARCH PROJECT

## The seals

Sea Lion Island shelters the only notable breeding colony of southern elephant seals (*Mirounga leonina*) in the Falkland Islands. Every year, during the three months of the breeding season (September-November) about 550 females came to land to give birth to a single pup. They spend on land a mean of 27 days.



After giving birth, each female suckles her pup for about 23 days, she mates, and she comes back to sea. The mother and the pup will never meet again.

Males come to land before the arrival of the first female, and compete for mating. Females tend to form large groups, called *harems*, and males struggle to get control of one of the them, with visual and acoustic threat displays and actual fights that may last for up to one hour. After the breeding season, both males and females come back to sea for feeding. They remain at sea for the rest of the year, apart from a three-weeks period in which they come again to land for the molt of the fur. When they are on land the completely fast, losing up to 40% of their weight during the breeding season.

## The project

In 1995 we started a long-term research project on elephant seals of Sea Lion Island, to study the demography, ecology, behaviour and genetics of the population. We use different techniques to collect data on all aspects of elephant seal breeding biology:

- we mark animals using cattle tags, hair dye marks, and electronic devices
- we count and identify all the animals in the breeding areas every day

- we map the position of individuals and harems using GPS receivers
- we spend hundred of hours observing the social and mating behaviour
- we record the vocalizations of male, females and pups to study communication
- we measure the size of adult individuals using 3D photogrammetric technique
- we weigh and measure pups at birth and weaning
- we get skin samples for genetic studies
- we collect blood samples to study hormones and physiology



## Results and prospects

Sea Lion Island is a small and localized population of elephant seals. Therefore, it represents an ideal situation to collect accurate information on marked individuals. Our research greatly improved the knowledge of the demography and dynamics of the population, and we produced a viability analysis that should serve as guidance for conservation policy. We studied the mating behaviour of the species, demonstrating the role of male harassment in the evolution of female breeding strategies. We investigated the importance of vocal communication in male competition, and we achieved a first demonstration of the presence of population-specific vocalizations, that point towards the presence of true dialects. We recently finished the analysis of DNA samples, that demonstrates a very good agreement between observed mating success and genetic paternity, and shows that the Falkland Islands are a likely conduit for gene flow among the main populations of the South Georgia stock. *For more details on the project please have a look to the research posters located in lodge.*

## About hair dye marks

Sea Lion Island visitors sometimes complain about the big hair dye marks we put on the animals. We understand that dye

marks are not very nice to see. On the other side, these marks are an essential research tool, and the wide use of them permit us to recognize almost all breeding individuals of the population. Dye marking poses no threat to the animal health, in most cases it is accomplished without any particular disturbance of the animal, and last just until the molt. Moreover, dye marks permit to identify the animals from distance, avoiding the need to get close and read the tags. We really appreciate visitors patience toward marks, and we leave one of the bre-



eding areas as much mark-free as possible (please ask to the lodge staff how to get to the marks-free area).

## Safe observation of seals

You should always keep in mind that approaching seals is *dangerous*. Although they seem quite and slow, they are sometimes very aggressive (mothers with pup in particular). *We suggest you to always keep at least five meters of distance from the seals, and to look at your back. Moreover, you should be very careful when approaching researchers during weighing and handling operations.*

## If you wish to help

As for most wildlife field research, the funding of our project is scarce and irregular, and the needing to access new technologies puts an heavy load on our budget. If you wish to help our research you may buy one of our fine prints, or make a small donation (please ask to the lodge staff).

Thank you for your kind attention and help

**Filippo Galimberti & Simona Sanvito**

