



Building resilience into the Southern Rockhopper Penguin colony at Sea Lion Island.

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The project funded by the ESB 2020/21 is a novel conservation approach in an attempt to reverse the declining numbers of Southern Rockhopper Penguins at Sea Lion Island.



Sea Lion Island Southern Rockhopper Penguin Colony (Left: c.1930s; Right: 2014)



King Shags nesting at Sea Lion Island Southern Rockhopper Penguin colony increases the overall numbers of birds and therefore significantly increases resilience against predation.

Southern Rockhopper Penguins are listed as Vulnerable on the IUCN Red list and are the Falklands' most threatened breeding seabird species. At Sea Lion Island a small colony is located at the west end where King Shags also nest. In 2014 there were 550 breeding pairs of SRP, and in 2019 the numbers had fallen to 371 pairs. Average breeding success at Sea Lion Island was 0.57 chicks/pair from 2000 to 2018 (average of all FIMSP sites is 0.63 chicks/pair). During 2019/20 chick survival was reduced to almost zero through a combination of predation and exposure of the chicks to a prolonged storm event. In 2010, there was complete breeding failure of the chicks following a severe storm event. The colony also supports several hundred breeding King Shags. In recent years predation of King Shag chicks by Southern Giant Petrel has also been observed.

The observed Southern Giant Petrel predation appears to involve one or two individuals that walk into the colony and take King Shag chicks from the nest, even if the adults are present. During the crèche period of the Southern Rockhopper Penguin there are few adults remaining at the colony, and at Sea Lion Island Giant Petrels have been observed directly taking the Rockhopper chicks during this vulnerable period.

More severe storm events are predicted with climate change, and the colony at Sea Lion Island is extremely exposed to these storm events. Southern Giant Petrels are by nature predatory and scavenging birds, however the impact of predation at a small seabird colony may have a detrimental long-term impact that, at worst, contributes to complete failure of the colony. For example, at Steeple Jason a Southern Rockhopper Penguin colony (150-200 pairs) at the Neck area disappeared completely in 2012, probably due to unsustainable predation by Striated Caracara (FIMSP data).

Southern Rockhopper Penguins are already facing population declines; many of the threats are at sea and cannot easily be managed or mitigated against (e.g. pollution, climate change, changes to prey availability etc.). Managing the breeding site is one conservation tool that can be undertaken in an attempt to build resilience into the population by increasing the number of chicks that survive to fledging.

The objective of the project will be to build resilience into the Southern Rockhopper Penguin colony at Sea Lion Island in an attempt to improve the overall fledging success, and help improve or maintain the status of the colony. To achieve this the project aims to:

- Move large boulders and rocks into the breeding colony from the surrounding landscape to provide shelter in an otherwise very exposed site.

- Encourage King Shags to successfully nest in the colony to increase the overall numbers of breeding birds and provide further protection for Southern Rockhopper Penguin chicks.
- The project will design and produce life size replica King Shags. The rationale for the replica King Shags is two-fold; i) the replica King Shags will help to maintain a barrier around the colony to exclude Southern Giant Petrels, ii) the replicas will encourage King Shags to successfully nest and breed at the colony.

Work completed and findings to date

Landscaping with large boulders

Landscaping was conducted in the winter of 2020 and 2021. Large boulders and stones were moved into the empty colony and arranged to offer protection from westerly and south westerly storms. Help was also given by the BFAI during a routine patrol at Sea Lion Island.



Landscaping with large boulders at the colony

Remote camera

A Reconyx remote camera trap was installed at the colony during the chick crèche period in Dec 2020 – Jan 2021. The aim was to capture evidence of Southern Giant Petrels within the colony, to understand their movement's better and potential methods of predation on chicks. The camera captured the presence of Southern Giant Petrels during night and also daytime, as well as the occurrence of Striated Caracara and Falkland Skua.



Southern Giant Petrel nocturnal hunting at the colony



Striated Caracara breed in close proximity to the colony and will frequently take eggs and chicks



Falkland Skua breed in the vicinity and are opportunistic predators taking eggs and chicks



A Southern Giant Petrel captured on camera, possibly in the act of preying a King Shag chick

Shag replicates

King Shag replicates were made from concrete using a specialised silicon mould. The production of the replicates is ongoing and will continue through the summer of 2021/22. The final moulds will be painted in external concrete paint and sited at the Rockhopper colony.



Work to be completed

- Continue with field and camera observations at the colony over December 2021 and January 2022: to understand better the level and type of predation and attempt to mitigate and reduce the loss of excessive numbers of rockhopper chicks.
- Produce an information board that describes the aims of the project alongside the conservation concerns of Southern Rockhopper Penguins.
- Raise the awareness on the conservation status of Southern Rockhopper Penguins to a range of people (from International guests to local residents);
- Help to develop and guide conservation tools to improve breeding resilience at other seabird colonies.

Expenditure of the ESB grant

Expenditure	Progress
Design, produce a silicon mould of a King Shag: £500-750	The mould was completed in July 2021 by Steve Massam
Concrete £60; resin £100: mesh fibre: £100 Paint: £50 Freight to Sea Lion Island (Work Boat Services) £40	Concrete and other materials were freighted to Sea Lion Island in the summer of 2020/21 for the production of Shag replicates.
Design and production of an information board plus freight from UK £400	<p>Design of the board has been delayed until we are able to move sufficient numbers of the King Shag replicates into the colony, and have undertaken further observations in order to guide the information on the board</p> <p>Envisaged expenditure: Winter 2022 and in position at colony in summer 2022</p>