



Taking action for The Amsterdam albatross

A synopsis of the national plan of actions
2011 - 2015



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What is a national plan of actions?

A national plan of actions aims the conservation of endangered species and participates in the collective interest of halting biodiversity loss. Established for one or more plant or animal species, it defines the actions to be implemented in order to restore or maintain these species at a favorable conservation status.

Initiated and supported by the Ministry in charge of Ecology, it is established and implemented in consultation with all stakeholders: the state services, the local authorities, scientists, socio-professional actors (farmers, foresters, energy producers and distributors, developers ...), area managers (National Parks, regional parks, nature reserves ...), associations for conservation, users of nature ...

The species benefiting from a national plan of actions are chosen based on criteria that include the biological status of these species, their geographical distribution, the responsibility of France in their conservation or our ability to act.

A national plan of actions has two overriding factors: - The collection of available knowledge about this (these) species identified in the plan including the threats to this (these) case (s) - The strategic guidelines to maintain or restore this (these) species in a good state of preservation, accompanied by a series of measures to be implemented to face these threats.



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I. CURRENT STATE OF KNOWLEDGE

Albatrosses are the world's largest seabirds. Majestic travelers of the seas, they have fascinated mariners, naturalists and poets, and are now heavily threatened of extinction: out of the 22 existing species, 18 are globally threatened. Among them, the Amsterdam albatross (*Diomedea amsterdamensis*) is certainly the most fragile species.

The Amsterdam albatross is endemic to Amsterdam Island where it breeds. This uninhabited island, located in the southern Indian Ocean, is part of the National Nature Reserve of the French Southern Territories (territory of the French Southern and Antarctic Lands, TAAF). Long-term monitoring conducted on the Amsterdam albatross since the 80's by the research team CNRS Chizé and implemented by the French Polar Institute Paul-Emile Victor (IPEV) enabled to identify the threats surrounding this species. Thus, its extremely reduced population and the small area of its breeding grounds make it now a species with priority conservation issues in the management plan of the Natural Reserve of the French Southern Territories.

ENGLISH NAME : Amsterdam Albatross

LATIN NAME : *Diomedea amsterdamensis*

BRANCH : Vertebrates

CLASS : Aves

ORDER : Procellariiformes

FAMILY : Diomedidae

WINGSPAN : 2.8 m

WEIGHT: 6.3 kg

IUCN STATUS : Critically Endangered (CR)



With a wingspan approaching 3 meters, the Amsterdam albatross is one of the largest seabirds in the world: the group of large albatrosses.



The plumage marked with brown at any age and the beak adorned with a black line are among the criteria visually differentiating the Amsterdam albatross of the more widespread wandering albatross.

Differences with the wandering albatross

First considered a subspecies of the more widespread wandering albatross, *Diomedea exulans*, the Amsterdam albatross has been elevated to species rank for the first time in 1983 following Roux et al. Thus, the Amsterdam albatross is poorly known compared to other albatross species.

With an average wingspan of 2.80 meters, it is slightly smaller than the wandering albatross. It is distinguished also by its darker plumage, marked with brown at any age, its beak adorned with a black line and a dark tip. Finally, its breeding period shifted by 2 months compared to the wandering albatross make it a distinct species, by preventing these two species to hybridize. Very recent genetic studies (Rains et al. 2011) have confirmed the separation of the species.



Numbers and population trend

In general, albatrosses are characterized by very low fecundity (a single egg laid per year or every 2 years), late sexual maturity (first breeding at age 7-10 years) and very long-lived (up to 60-80 years). The Amsterdam albatross is no exception to these common features.

The breeding cycle lasts 10-11 months, and alternates with a sabbatical year: thus, one chick is raised at best every two years. Birds arrive on the breeding site in January-February. The nest is built on the ground and the egg is laid. Both adults participate alternately in the incubation and chick rearing, and juveniles fledge after a long raising period of 9 months. The juveniles will return to Amsterdam Island after 4-5 years at sea and the first reproduction occurs on average at the age of 9 years.

This unique and fragile population has undergone an extremely narrow genetic bottleneck, with only five couples mentioned in 1982. The low genetic diversity of this species, the lowest known for a bird, does not seem to interfere with the current demographic trends, since the population is growing steadily with an annual growth rate of 4.9% over the survey period from 1983 to 2007. Currently, this unique population is estimated to 160-170 individuals, of which only 80 to 90 mature birds (Rivalan et al. 2010), representing thirty breeding pairs per year.

The current growth rate of the population can be seen as quasi-maximum for a species with such low fecundity: the annual survival rate of juveniles between fledging and the 7th year is indeed very high (94%), and reproductive success is good (61%). However, the very low fecundity and the extremely limited total numbers put this population at high risk with any incidental mortality. A recent study showed that incidental mortality of only five individuals per year would be enough to reverse this trend, by decreasing the population of 3.3% per year.

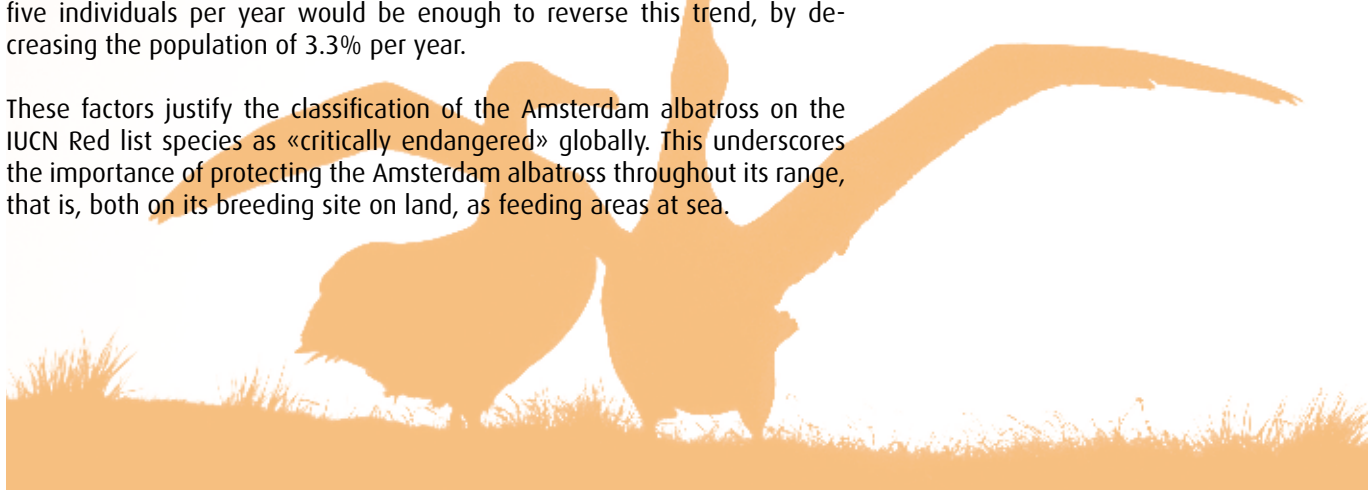
These factors justify the classification of the Amsterdam albatross on the IUCN Red list species as «critically endangered» globally. This underscores the importance of protecting the Amsterdam albatross throughout its range, that is, both on its breeding site on land, as feeding areas at sea.



Two Amsterdam albatrosses at nest: in albatross pairs, partners are often true to life.



Courtship of two Amsterdam albatross on their only nesting site: the Peat Bog Plateau, at the summit of Amsterdam Island.



Habitat and distribution

The Peat Bog Plateau, located approximately 600 m high on Amsterdam Island, is the only nesting site of the Amsterdam albatross. This plateau is characterized by a water-saturated peat and populated of typical plant communities: moss, sphagnum moss, liverworts, ferns, grasses, Cyperaceae. This habitat is home to many endemic plant species but also animals (invertebrates) and has therefore a high legacy value itself.

The nests built by the Amsterdam albatrosses are made from soil and various plants. Examination of their distribution shows that all of them are located precisely, without exception, on a very particular soil unit consisting of peat soil constantly moist but not saturated, organic-rich with very gentle slope. Absence of nests on similar soil types (slightly more wet, dry or steep, or compacted by trampling of cattle present in Amsterdam until very recently), shows a very strong dependence of the Amsterdam albatross to the existence of this specific environment.

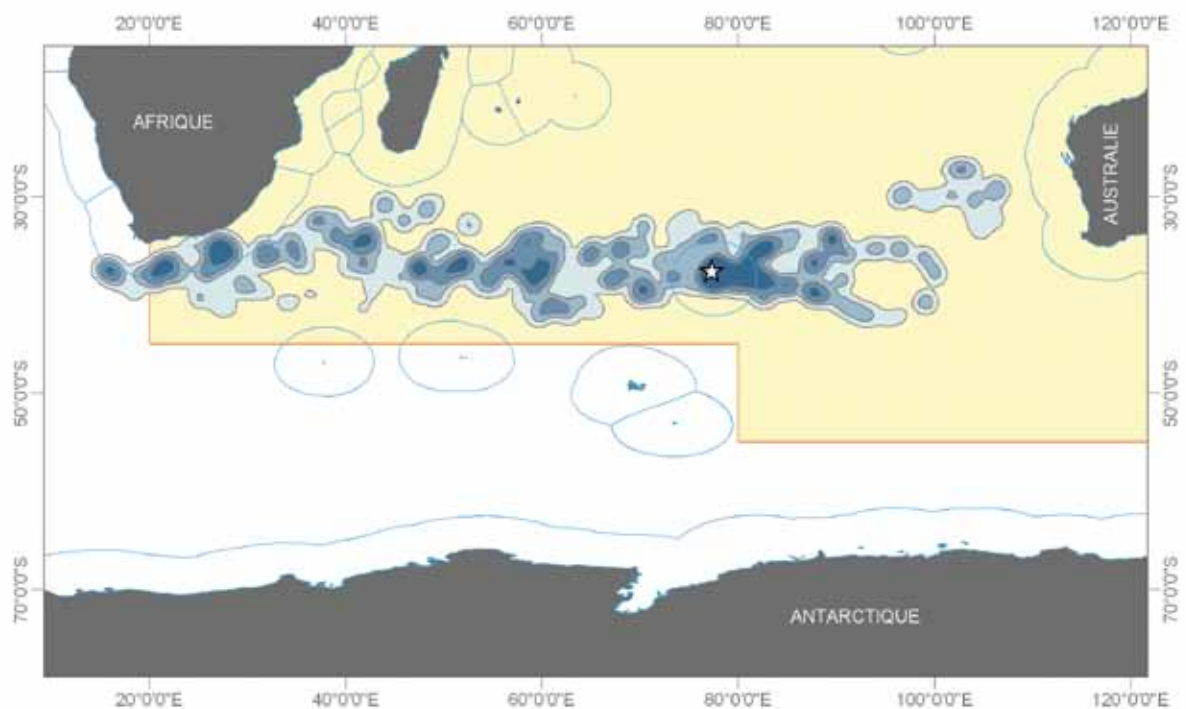
At sea, the range of the Amsterdam albatross is just starting to be known, through the use of miniaturized devices (Argos, GPS) giving information on the location of birds feeding at sea. The Amsterdam albatross appears to distribute in the subtropical region of the southern Indian Ocean, from the African to the Australian coasts, between 25 ° S and 40 ° S.



Amsterdam albatross on its nest, composed of plant materials typical of the Peat Bog. Plateau



The Peat Bog Plateau, unique nesting site of the Amsterdam albatross.

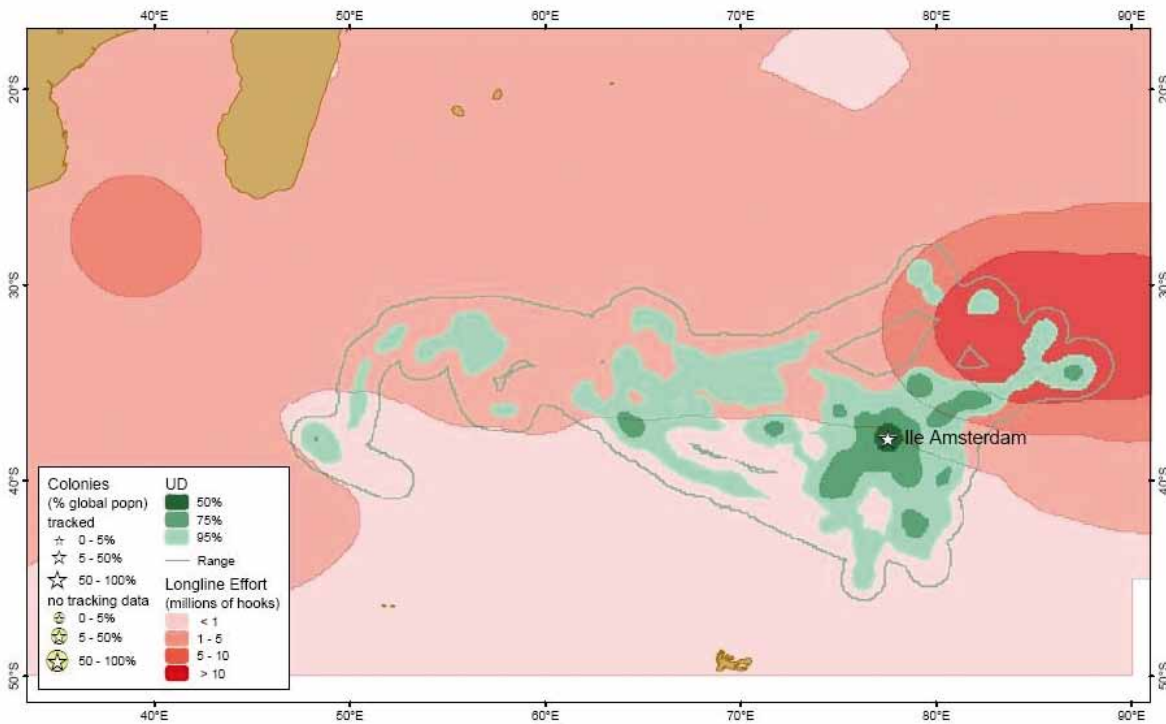
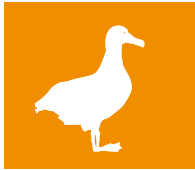


Preliminary data of satellite tracking of juvenile Amsterdam albatrosses during their post-natal dispersal from Amsterdam Island (indicated by the star). The contours of habitat use by the birds (kernel densities of 25%, 50%, 75% and 95%) are shown in shades of blue. The limits of exclusive economic zones of States are drawn around the coasts, and in yellow is represented the extent of the fishing area governed by the Indian Ocean Tuna Commission (IOTC). Map based on the unpublished preliminary data provided by Henri Weimerskirch of the CNRS Chizé.

Threats

The danger of extinction hanging over the Amsterdam albatross is both within direct threats and damage to its habitat: four conservation priorities have been defined.

First, studies conducted by CNRS Chizé show complete overlap of the distribution area of adult Amsterdam albatrosses with longline fisheries in the IOTC and CCSBT (see box) during the last 20 years. Weimerskirch et al. (1997) suggested that the bycatch of Amsterdam albatrosses in the longline fisheries of the Indian Ocean in the past could explain the very low number of pairs on the colony during the early monitoring of the species in 1983. Although no incidental capture of Amsterdam albatross in the fisheries has been reported to date, it is noteworthy that these fisheries are not required to report capture nor ring recoveries outside the economic zones (EEZs). Moreover, given the significant impact that could have such incidental mortality on the current population, the involvement of Regional Fisheries Management Organizations (RFMOs) is necessary, through the implementation of mitigation measures of seabirds incidental bycatch, and boarding independent observers dedicated to avian mortality issues.



At sea distribution of adult Amsterdam albatrosses during incubation shifts (density of locations in green) and overlap with the longline fishing effort (in red) in the IOTC area: half the distribution area of surveyed birds is in direct contact with strong fishing effort. South of this area, the Amsterdam albatrosses are also in contact with longliners in the area of the CCSBT. (Source: Adapted from paper presented ACAP third session of the IOTC in July 2007)

The Regional Fisheries Management Organizations (RFMOs) of concern



- Indian Ocean Tuna Commission (IOTC), aims to promote cooperation among its members to ensure the conservation and optimum utilization of stocks covered by the agreement. IOTC should also enforce measures to reduce the incidental catch of seabirds, especially by longliners;
- The Commission for the Conservation of Southern Bluefin Tuna (CCSBT), into which the European Community is «cooperating non-member» aims to the conservation and rational exploitation of bluefin tuna. The bycatch reduction is among the objectives of the Agreement;
- The southern Indian Ocean Fisheries Agreement (SIOFA), is a multilateral agreement on fisheries management other than tuna, including expected impact of fishing on the environment.

Second, long-term monitoring of the population of yellow-nosed albatross *Thalassarche carteri* on Amsterdam Island has revealed that chicks were affected by a disease causing sudden death: two pathogens are involved, those causing swine erysipelas (*Erysipelothrix rhusiopathidae*) and avian cholera (*Pasteurella multocida*).

The first affects a wide variety of wild and domestic animals: land and marine mammals, birds, freshwater fish and seafood, etc.. Serotypic analyzes conducted may suggest contamination by introduced animals such as pigs, which were still present on the island in 80 years, but does not allow to exclude natural contamination.

Avian cholera affects wild and domestic birds and is characterized by a sudden and significant mortality. However, this bacterium has a limited survival when in water or soil.

For both bacteria, the domestic origin can not be excluded: the barn removed from the island in 2007 following an outbreak remained accessible for several decades to wild birds, including subantarctic skuas *Catharacta skua lonnbergi* that are found throughout the island.

Infected colonies of yellow-nosed albatross being close to Plateau where Amsterdam albatrosses breed, this situation shows considerable risk of outbreak of an epizootic of avian cholera in particular, which would be catastrophic for the population of Amsterdam albatross.

Third, cat, rat, and mice are introduced predators on the island. So far, no case of predation on Amsterdam albatross due to these species has been reported. However, predation of eggs and chicks by cats and rats is widely documented in seabirds, and in territories of the South Atlantic similar to Amsterdam, mice have also been found responsible for deadly attacks on albatross chicks. This raised fears of a heavy impact of these introduced predators on the fragile population of Amsterdam albatross, especially on the chicks.



The cat was introduced in Amsterdam in the '30s, its presence probably helps limit the population of rats and mice on the island, but has a potentially severe impact on seabird populations of the island.

Removal of these introduced animals is challenging because they exercise these complex relationships of predation and competition: the elimination of a species may in turn favor another one. If an eradication operation were to be practiced, it should involve the three species simultaneously. Alternatively, regulating the number of predators around the breeding site could be considered only if it turns out that a particular species had a negative effect on the Amsterdam albatrosses.

Finally, recent analyzes showed that the variation of climatic factors (temperature of ocean surface, IOD index «Indian Ocean Dipole», etc) can affect survival of seabirds or their breeding success. They also showed that these variations can modify the balance of marine ecosystems and could thus affect the availability of resources targeted by the Amsterdam albatross in its range. On land, the threat from climate change (reduced rainfall, which seems to be confirmed in Amsterdam) is also important, given the dependence of the species to its nesting habitat.

Such an alteration in the rate of soil moisture could induce a change in associated plant communities. This habitat has also already suffered significant damage due to the presence of cattle introduced into Amsterdam in 1871. The latter, by grazing and trampling vegetation soil, have compacted the surface horizon, making it unsuitable for albatrosses nesting on large parts of the island. Complete removal of the herd, in 2010, fruit of long reflection among scientists, managers and relevant authorities has removed this threat. However, soil regeneration, where it is still possible, starts slow.





II. CONSERVATION STRATEGY

Hosting a species with such conservation stakes imposes great responsibility to France.

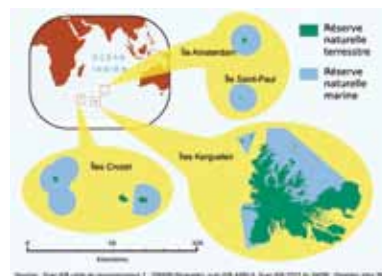
The national conservation strategy for the Amsterdam albatross, outlined in the TAAF Biodiversity Action Plan (2009-2010), and identified as a priority of the management plan of the National Nature Reserve of French Southern Territories (2011-2015) is rigorously defined in this national plan of actions. The basic objective of this plan is to keep the momentum of population growth, which is estimated as optimal, and to minimize the pressures and threats to the species.

The steering committee of the plan

As part of this national plan of actions, the TAAF have joined the scientists from the laboratory of CNRS Chizé working on this species for many years, and the League for the Protection of Birds (LPO), which is the French partner of Birdlife International. A monitoring committee comprising scientists, the Polar Institute Paul Emile Victor, the Museum National d'Histoire Naturelle (MNHN), and the various authorities involved has been set up in January 2011 to monitor the work and validate the conservation measures proposed.

This conservation strategy is part of a framework of important regulatory tools, at both national and international levels:

Firstly, Amsterdam Island and its territorial waters are, since 2006, protected as National Nature Reserve, this nature reserve also encompassing the territories of the Crozet, Kerguelen and St. Paul Islands. The administration of the TAAF is manager of this reserve, the largest in France. This strong protection tool allows managing conservation actions in favor of the Amsterdam albatross on its breeding site.



Situation of the National Nature Reserve of the French Southern Territories

In addition, the whole nature reserve is listed under the Ramsar Convention, which attests to the importance and quality of its wetlands, including peatlands hosting the Amsterdam albatross.

Moreover, at international level, the signature and ratification by France of the Agreement for the Conservation of Albatrosses and Petrels (ACAP) in 2005 reinforces the commitment of France in preserving these species.

Finally, France attends and is proactive in RFMOs that intersect the distribution area of the Amsterdam albatross (IOTC, CCSBT, SIOFA)



Amsterdam island benefits from different protection statuses adapted to the legacy value of the habitats.



Based on these strong structural basis, the conservation strategy adopted as part of this national plan of actions focuses on 20 concrete actions for the conservation of the Amsterdam albatross, for which indicators of success have been specifically defined. These actions have been listed according to three priority levels and organized into seven thematic sections, gathering immediate actions and long-term monitoring in areas of scientific research, management and communication.

1. Long-term monitoring

The number of breeding pairs has been recorded annually on Amsterdam Island since the description of the species in 1983, with individual surveys. It is essential to maintain this long term monitoring in order to get reliable indicators of population change, and rapidly detect any accident or change in trend, also predict the evolution of the Amsterdam albatross population under different scenarios of natural and / or function of management actions.



Excerpts from action sheets of the national plan

Action Sheets :

- Maintenance of the long-term survey of the Amsterdam albatross
- Demographic analyzes and survey of status and long-term trend of the Amsterdam albatross population
- Demographic modelling and projection of the Amsterdam albatross population under different scenarios of conservation strategies

2. Epizootic

The bacteria responsible for diseases of swine erysipelas and avian cholera dramatically affected yellow-nosed albatross colonies close to that of Amsterdam albatross. Facing the threat of contamination of Amsterdam albatrosses by native birds, introduced mammals and by man, it seems crucial to investigate whether these pathogens or other ones are present in this species and more generally in seabirds on the island including those in direct contact with the Amsterdam albatross.



Action Sheet :

- Improving knowledge on the potential pathogens of the Amsterdam albatross: searching for the presence of pathogens or associated antibodies in seabirds, study their life cycle, launching a long-term survey, re-evaluate the preventive rules applied on the field against dissemination of these pathogens

3. Use of marine habitat

Scientific studies enabled the acquisition and improvement of knowledge about the ecology of the Amsterdam albatross, both on-land and at-sea, however distribution at sea for several categories of the population remains unknown, as well as diet, and this is lacking to understand what are the marine sectors targeted by Amsterdam albatrosses during their life cycle and evaluate precisely the risks on these areas.

Action Sheets :

- Improving knowledge on the at-sea distribution of the Amsterdam albatross
- Modeling and predicting at-sea distribution of Amsterdam albatrosses under different scenarios of conservation strategies
- Identification of important marine areas for Amsterdam albatrosses
- Documenting Amsterdam albatrosses' diet in relation with fisheries
- Acquisition of knowledge on Amsterdam albatross diet

4. Interactions with fisheries

The demographic analyzes showed the considerable negative impact which a very small number of individuals captured would have on the unique population of Amsterdam albatross. In this context, it is urgent to act by quantifying the risk of interactions with longline fisheries, promoting the application of best methods known for mitigation of bycatch in all areas regularly used by Amsterdam albatrosses, and strengthening the presence of onboard observers on a «special» area for the Amsterdam albatross.

The marine environment used by the Amsterdam albatross is also used by many species of birds of legacy value particularly threatened. For this reason, the Amsterdam albatross is an actual umbrella species and these species should benefit from this action plan.

Action Sheets :

- Improving knowledge on at-sea interactions between fisheries and Amsterdam albatrosses
- Application of bycatch mitigation measures and survey in the southern Indian Ocean fisheries
- Observations of the seabirds bycatch on longline fishing vessels near Amsterdam Island
- Supporting efforts to promote the application of conservation measures in fishing operations in the Indian Ocean
- Provide the RFMOs with estimates of the potential impact of fisheries on the Amsterdam albatross by combining on-land and at-sea surveys of individuals

5. Terrestrial habitat

The Amsterdam albatross has been described very recently, thus there is no actual reference nesting area and numbers. It is therefore necessary to characterize the nesting habitat of the species, and assess the capacity of the habitat. This action must be realized in the context of environmental changes that could affect terrestrial habitats. Moreover, management actions for these habitats will benefit other species of legacy value, to be measured and reported in considering the Amsterdam albatross as an «umbrella species» in this habitat.

Action Sheets :

- Characterization and survey of the favourable nesting habitats
- Environmental benefits for other species

6. Habitat restoration

Introduced predators account for much of the extinctions of endemic species on islands and thus constitute a major component in the loss of biodiversity among vertebrates. However, no case of predation due to introduced species was reported so far for the Amsterdam albatross. The objective of this component is to conduct specific observations to quantify the interactions existing between the Amsterdam albatross and introduced predators; these results will feed the debate about the control or eradication of introduced predators on part of or entire island.



Action Sheets :

- Evaluation of the interactions between introduced predator species and Amsterdam albatrosses
- Eradication of introduced predator species on Amsterdam Island

7. Communicate and educate

The broadcasting of this plan is essential both nationally and internationally in view of the at-sea distribution of the Amsterdam albatross and its very unfavorable conservation status. Thus, this plan should be accessible to state services, as well as to international scientific community, staff sojourning in the nature reserve, fishermen, regional fishery organizations, to the various international commissions and agencies involved in conservation. Furthermore, it is expected to support and promote international field initiatives already underway aimed at educating the various partners (primarily fishers themselves).

Action Sheets :

- Communication of the national plan of actions for the Amsterdam albatross in France
- Coordination and implementation of the actions



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