

Chinstrap Penguin (*Pygoscelis antarcticus*)

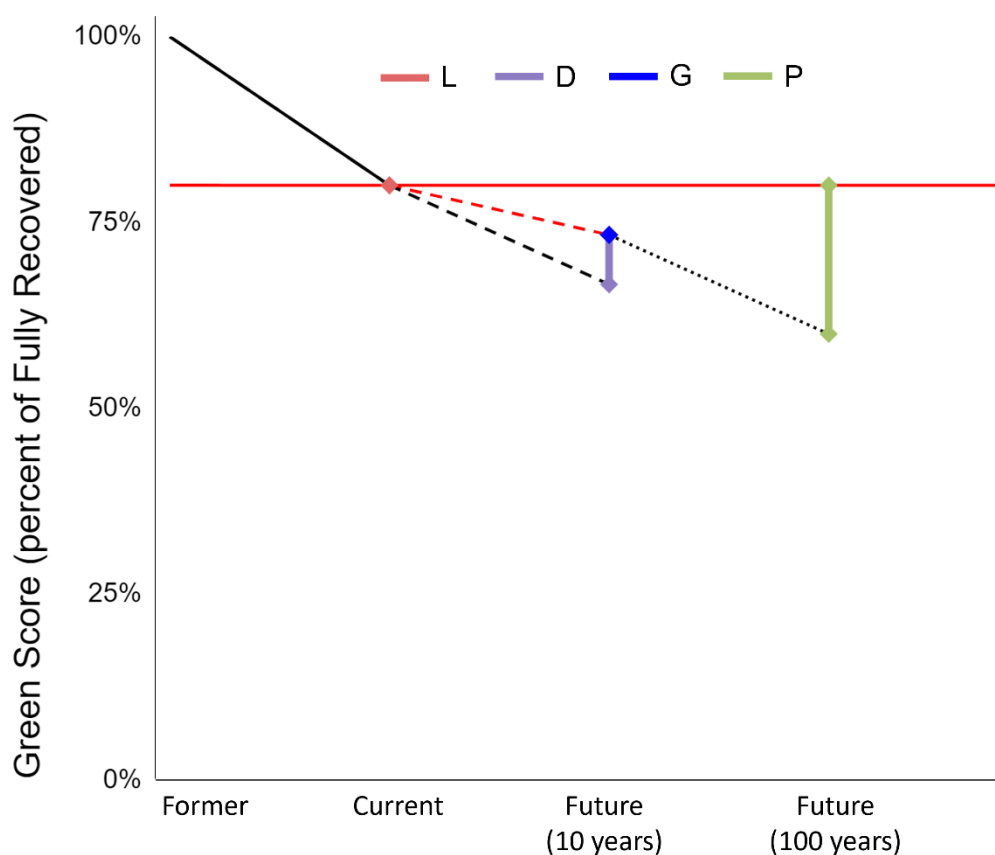


Figure S1. Graphical representation of the conservation metrics based on the Green Scores. For this species, a dynamic baseline was used; please read the following caption carefully and see IUCN SCSTF (2020) for further information about the use of dynamic baselines. Key: Vertical arrows represent the four conservation metrics: L – Conservation Legacy (difference between current and counterfactual; may not appear if current and counterfactual states are the same); D – Conservation Dependence (difference between dynamic baseline and future-without-conservation; may not appear if baseline and future-without-conservation states are the same); G – Conservation Gain (difference between future-with-conservation and dynamic baseline; may not appear if

baseline and future-with-conservation states are the same); P – Recovery Potential (difference between long-term potential and current; may not appear if current and potential states are the same). Horizontal red solid line represents the Current Green Score. Solid black line: observed change in the Green Score of the species (ignore it if "Former" state is not specified). Long-dashed black line: (counterfactual) past change expected in the absence of past conservation efforts. Dashed black lines: future scenarios of change expected with and without current and future conservation efforts. Dashed red line: dynamic baseline used to evaluate Conservation Gain and Dependence. For this species, the dynamic baseline is the same as the future-with-conservation scenario. Dotted black line: long-term potential change expected with future conservation innovation and efforts.

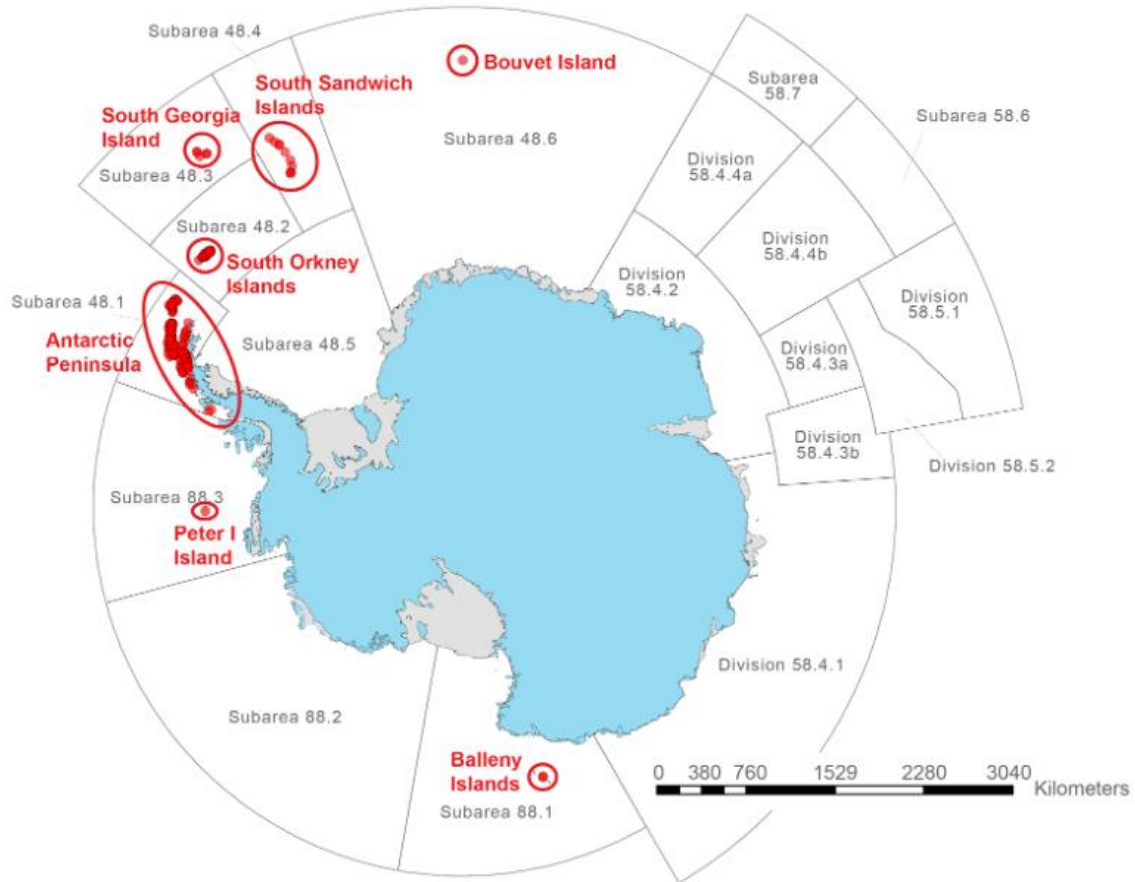


Figure S2. Chinstrap breeding colonies (red dots) and spatial units (red circles; note that the small populations on Bouvet Island, the Balleny Islands, and Peter I Island are grouped into a single spatial unit), adapted from Strycker *et al.* (2020). While the number of Chinstrap colonies has changed since the benchmark year (1750), its distribution did not include any additional areas at that time.

Table S1. Conservation Actions ([list of action codes](#)).

Classification	Full Description	Past actions (no longer occurring)	Current actions	Actions planned within 10 years	Actions that could be implemented in the long-term aspiration scenario
1.1	1.1 Land/water protection: Site/area protection	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.			
1.2	1.2 Land/water protection: Resource & habitat protection	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.			
2.1	2.1 Land/water management: Site/area management		Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.
2.2	2.2 Land/water management: Invasive/problematic species control		Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.

Classification	Full Description	Past actions (no longer occurring)	Current actions	Actions planned within 10 years	Actions that could be implemented in the long-term aspiration scenario
			Georgia Island, Balleny Islands.	Georgia Island, Balleny Islands.	
2.3	2.3 Land/water management: Habitat & natural process restoration				
3.1.1	3.1.1 Harvest management		Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.
3.1.2	3.1.2 Trade management				
3.1.3	3.1.3 Limiting population growth				
3.2	3.2 Species recovery				
3.3.1	3.3.1 Species re-introduction: Reintroduction				
3.3.2	3.3.2 Species re-introduction: Benign introduction				
3.4.1	3.4.1 <i>Ex situ</i> conservation: Captive breeding/artificial propagation				
3.4.2.	3.4.2 <i>Ex situ</i> conservation: Genome resource bank				

Classification	Full Description	Past actions (no longer occurring)	Current actions	Actions planned within 10 years	Actions that could be implemented in the long-term aspiration scenario
4.1	4.1 Education and Awareness: Formal education				
4.2	4.2 Education and Awareness: Training				
4.3	4.3 Education and Awareness: Awareness & communications		Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.
5.1.1	5.1.1 Legislation: International level		Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands.
5.1.2	5.1.2 Legislation: National level		Bouvet Island.	Bouvet Island.	Bouvet Island.
5.1.3	5.1.3 Legislation: Sub-national level				
5.1.4	5.1.4 Legislation: Scale unspecified				
5.2	5.2. Policies and regulations		Antarctic Peninsula Region, South Orkney Islands, South Sandwich	Antarctic Peninsula Region, South Orkney Islands, South Sandwich	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands,

Classification	Full Description	Past actions (no longer occurring)	Current actions	Actions planned within 10 years	Actions that could be implemented in the long-term aspiration scenario
			Islands, South Georgia Island, Balleny Islands.	Islands, South Georgia Island, Balleny Islands.	South Georgia Island, Balleny Islands.
5.3.	5.3. Private sector standards & codes				
5.4.1	5.4.1 Compliance and enforcement: International level		Antarctic Peninsula Region, South Orkney Islands, Balleny Islands.	Antarctic Peninsula Region, South Orkney Islands, Balleny Islands.	Antarctic Peninsula Region, South Orkney Islands, Balleny Islands.
5.4.2	5.4.2 Compliance and enforcement: National level		Bouvet Island, South Georgia and the South Sandwich Islands.	Bouvet Island, South Georgia and the South Sandwich Islands.	Bouvet Island, South Sandwich Islands, South Georgia Island.
5.4.3.	5.4.3 Compliance and enforcement: Sub-national level				
5.4.4.	5.4.4 Compliance and enforcement: Scale unspecified				
6.1.	6.1 Livelihood, economic & other incentives: Linked enterprises & livelihood alternatives				
6.2	6.2 Livelihood, economic & other incentives: Substitution				
6.3	6.3 Livelihood, economic & other incentives: Market forces				

Classification	Full Description	Past actions (no longer occurring)	Current actions	Actions planned within 10 years	Actions that could be implemented in the long-term aspiration scenario
6.4	6.4 Livelihood, economic & other incentives: Conservation payments				
6.5	6.5. Livelihood, economic & other incentives: Non-monetary values		Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands, Bouvet Island.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands, Bouvet Island.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands, Bouvet Island.

Table S2. Threats (list of [threat codes](#)).

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
1.1	1.1 Residential & commercial development: Housing & urban areas				
1.2	1.2 Residential & commercial development: Commercial & industrial areas				
1.3	1.3 Residential & commercial development: Tourism & recreation areas				
2.1.1	2.1.1 Agriculture & aquaculture: Annual & perennial non-timber crops: Shifting agriculture				
2.1.2	2.1.2 Agriculture & aquaculture: Annual & perennial non-timber crops: Small-holder farming				
2.1.3	2.1.3 Agriculture & aquaculture: Annual & perennial non-timber crops: Agro-industry farming				
2.1.4	2.1.4 Agriculture & aquaculture: Annual & perennial non-timber crops: Scale Unknown/Unrecorded				
2.2.1	2.2.1 Agriculture & aquaculture: Wood & pulp plantations: Small-holder plantations				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
2.2.2	2.2.2 Agriculture & aquaculture: Wood & pulp plantations: Agro-industry plantations				
2.2.3	2.2.3 Agriculture & aquaculture: Wood & pulp plantations: Scale Unknown/Unrecorded				
2.3.1	2.3.1 Agriculture & aquaculture: Livestock farming & ranching: Nomadic grazing				
2.3.2	2.3.2 Agriculture & aquaculture: Livestock farming & ranching: Small-holder grazing, ranching or farming				
2.3.3	2.3.3 Agriculture & aquaculture: Livestock farming & ranching: Agro-industry grazing, ranching or farming				
2.3.4	2.3.4 Agriculture & aquaculture: Livestock farming & ranching: Scale Unknown/Unrecorded				
2.4.1	2.4.1 Agriculture & aquaculture: Marine & freshwater aquaculture: Subsistence/artisanal aquaculture				
2.4.2	2.4.2 Agriculture & aquaculture: Marine & freshwater aquaculture: Industrial aquaculture				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
2.4.3	2.4.3 Agriculture & aquaculture: Scale Unknown/Unrecorded				
3.1	3.1 Energy production & mining: Oil & gas drilling				
3.2	3.2 Energy production & mining: Mining & quarrying				
3.3	3.3 Energy production & mining: Renewable energy				
4.1	4.1 Transportation & service corridors: Roads & railroads				
4.2	4.2 Transportation & service corridors: Utility & service lines				
4.3	4.3 Transportation & service corridors: Shipping lanes				
4.4	4.4 Transportation & service corridors: Flight paths				
5.1.1	5.1.1 Biological resource use: Hunting & collecting terrestrial animals: Intentional use (species being assessed is the target)				
5.1.2	5.1.2 Biological resource use: Hunting & collecting terrestrial animals: Unintentional effects (species being assessed is not the target)				
5.1.3	5.1.3 Biological resource use: Hunting & collecting terrestrial animals: Persecution/control				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
5.1.4	5.1.4 Biological resource use: Hunting & collecting terrestrial animals: Motivation Unknown/Unrecorded				
5.2.1	5.2.1 Biological resource use: Gathering terrestrial plants: Intentional use (species being assessed is the target)				
5.2.2	5.2.2 Biological resource use: Gathering terrestrial plants: Unintentional effects (species being assessed is not the target)				
5.2.3	5.2.3 Biological resource use: Gathering terrestrial plants: Persecution/control				
5.2.4	5.2.4 Biological resource use: Gathering terrestrial plants: Motivation Unknown/Unrecorded				
5.3.1	5.3.1 Biological resource use: Logging & wood harvesting: Intentional use: subsistence/small scale (species being assessed is the target [harvest])				
5.3.2	5.3.2 Biological resource use: Logging & wood harvesting: Intentional use: large scale				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
	(species being assessed is the target)[harvest]				
5.3.3	5.3.3 Biological resource use: Logging & wood harvesting: Unintentional effects: subsistence/small scale (species being assessed is not the target)[harvest]				
5.3.4	5.3.4 Biological resource use: Logging & wood harvesting: Unintentional effects: large scale (species being assessed is not the target)[harvest]				
5.3.5	5.3.5 Biological resource use: Logging & wood harvesting: Motivation Unknown/Unrecorded				
5.4.1	5.4.1 Biological resource use: Fishing & harvesting aquatic resources: Intentional use: subsistence/small scale (species being assessed is the target)[harvest]				
5.4.2	5.4.2 Biological resource use: Fishing & harvesting aquatic resources: Intentional use: large scale (species being assessed is the target)[harvest]				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
5.4.3	5.4.3 Biological resource use: Fishing & harvesting aquatic resources: Unintentional effects: subsistence/small scale (species being assessed is not the target)[harvest]				
5.4.4	5.4.4 Biological resource use: Fishing & harvesting aquatic resources: Unintentional effects: large scale (species being assessed is not the target)[harvest]	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands, Bouvet Island.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands, Bouvet Island.	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny Islands, Bouvet Island.	
5.4.5	5.4.5 Biological resource use: Fishing & harvesting aquatic resources: Persecution/control				
5.4.6	5.4.6 Biological resource use: Fishing & harvesting aquatic resources: Motivation Unknown/Unrecorded				
6.1	6.1 Human intrusions & disturbance: Recreational activities		Antarctic Peninsula Region, South Orkney Islands, South Georgia Island.	Antarctic Peninsula Region, South Orkney Islands, South Georgia Island.	

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
6.2	6.2 Human intrusions & disturbance: War, civil unrest & military exercises	South Georgia Island.			
6.3	6.3 Human intrusions & disturbance: Work & other activities				
7.1.1	7.1.1 Natural system modifications: Fire & fire suppression: Increase in fire frequency/intensity				
7.1.2	7.1.2 Natural system modifications: Fire & fire suppression: Suppression in fire frequency/intensity				
7.1.3	7.1.3 Natural system modifications: Fire & fire suppression: Trend Unknown/Unrecorded				
7.2.1	7.2.1 Natural system modifications: Dams & water management/use: Abstraction of surface water (domestic use)				
7.2.2	7.2.2 Natural system modifications: Dams & water management/use: Abstraction of surface water (commercial use)				
7.2.3	7.2.3 Natural system modifications: Dams & water				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
	management/use: Abstraction of surface water (agricultural use)				
7.2.4	7.2.4 Natural system modifications: Dams & water management/use: Abstraction of surface water (unknown use)				
7.2.5	7.2.5 Natural system modifications: Dams & water management/use: Abstraction of ground water (domestic use)				
7.2.6	7.2.6 Natural system modifications: Dams & water management/use: Abstraction of ground water (commercial use)				
7.2.7	7.2.7 Natural system modifications: Dams & water management/use: Abstraction of ground water (agricultural use)				
7.2.8	7.2.8 Natural system modifications: Dams & water management/use: Abstraction of ground water (unknown use)				
7.2.9	7.2.9 Natural system modifications: Dams & water management/use: Small dams				
7.2.10	7.2.10 Natural system modifications: Dams & water management/use: Large dams				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
7.2.11	7.2.11 Natural system modifications: Dams & water management/use: Dams (size unknown)				
7.3	7.3 Natural system modifications: Other ecosystem modifications				
8.1.1	8.1.1 Invasive & other problematic species, genes & diseases: Invasive non-native/alien species/diseases: Unspecified species				
8.1.2	8.1.2 Invasive & other problematic species, genes & diseases: Invasive non-native/alien species/diseases: Named species				
8.2.1	8.2.1 Invasive & other problematic species, genes & diseases: Problematic native species/diseases: Unspecified species				
8.2.2	8.2.2 Invasive & other problematic species, genes & diseases: Problematic native species/diseases: Named species				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
8.3	8.3 Invasive & other problematic species, genes & diseases: Introduced genetic material				
8.4.1	8.4.1 Invasive & other problematic species, genes & diseases: Problematic species/diseases of unknown origin: Unspecified species				
8.4.2	8.4.2 Invasive & other problematic species, genes & diseases: Problematic species/diseases of unknown origin: Named species				
8.5.1	8.5.1 Invasive & other problematic species, genes & diseases: Viral/prion-induced diseases: Unspecified "species" (disease)				
8.5.2	8.5.2 Invasive & other problematic species, genes & diseases: Viral/prion-induced diseases: Named "species" (disease)				
8.6	8.6 Invasive & other problematic species, genes & diseases: Diseases of unknown cause				
9.1.1	9.1.1 Pollution: Domestic & urban waste water: Sewage				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
9.1.2	9.1.2 Pollution: Domestic & urban waste water: Run-off				
9.1.3	9.1.3 Pollution: Domestic & urban waste water: Type Unknown/Unrecorded				
9.2.1	9.2.1 Pollution: Industrial & military effluents: Oil spills				
9.2.2	9.2.2 Pollution: Industrial & military effluents: Seepage from mining				
9.2.3	9.2.3 Pollution: Industrial & military effluents: Type Unknown/Unrecorded				
9.3.1	9.3.1 Pollution: Agricultural & forestry effluents: Nutrient loads				
9.3.2	9.3.2 Pollution: Agricultural & forestry effluents: Soil erosion, sedimentation				
9.3.3	9.3.3 Pollution: Agricultural & forestry effluents: Herbicides & pesticides				
9.3.4	9.3.4 Pollution: Agricultural & forestry effluents: Type Unknown/Unrecorded				
9.4	9.4 Pollution: Garbage & solid waste				
9.5.1	9.5.1 Pollution: Air-borne pollutants: Acid rain				

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
9.5.2	9.5.2 Pollution: Air-borne pollutants: Smog				
9.5.3	9.5.3 Pollution: Air-borne pollutants: Ozone				
9.5.4	9.5.4 Pollution: Air-borne pollutants: Type Unknown/Unrecorded				
9.6.1	9.6.1 Pollution: Excess energy: Light pollution				
9.6.2	9.6.2 Pollution: Excess energy: Thermal pollution				
9.6.3	9.6.3 Pollution: Excess energy: Noise pollution				
9.6.4	9.6.4 Pollution: Excess energy: Type Unknown/Unrecorded				
10.1	10.1 Geological events: Volcanoes		South Sandwich Islands.	South Sandwich Islands.	
10.2	10.2 Geological events: Earthquakes/tsunamis				
10.3	10.3 Geological events: Avalanches/landslides				
11.1	11.1 Climate change & severe weather: Habitat shifting & alteration		Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island, Balleny	Antarctic Peninsula Region, South Orkney Islands, South Sandwich Islands, South Georgia Island,

Classification	Full Description	Past threats (no longer occurring)	Current threats	Threats expected to emerge or continue over next 10 years	Threats that would be relevant in the long-term aspiration scenario
			Islands, Bouvet Island.	Islands, Bouvet Island.	Balleny Islands, Bouvet Island.
11.2	11.2 Climate change & severe weather: Droughts				
11.3	11.3 Climate change & severe weather: Temperature extremes				
11.4	11.4 Climate change & severe weather: Storms & flooding				
11.5	11.5 Climate change & severe weather: Other impacts				
12.1	12.1 Other threat				

References

IUCN Species Conservation Success Task Force, 2020. *Background and guidelines for the IUCN Green Status of Species*. Version 1.0. Prepared by the Species Conservation Success Task Force. <https://www.iucnredlist.org/resources/green-status-assessment-materials>.

Strycker, N., Wethington, M., Borowicz, A., Forrest, S., Witharana, C., Hart, T. and Lynch, H. J. 2020. A global population assessment of the Chinstrap Penguin (*Pygoscelis antarctica*). *Scientific Reports* 10(1): 1–11.

Appendix 1: Assessor Self-Review

1. Disclose any potential conflicts of interest, which could bias the assessment.
None

2. Is there any discrepancy between this assessment and the Red List assessment for the species? If so, comment on the likely reason for this discrepancy.
No

3. Review the impact that you assigned to the various threats and conservation actions. Would the trajectory of the species be very different if other choices were made? If so, review your justification for these choices. If appropriate, widen the bounds on tabs 4 and 5-8 (change the lower and upper plausible values) to reflect the uncertainty introduced by the possibility of these other choices. How, if at all, did this review question cause this assessment to change? If no changes were needed, please write "no changes".
No changes