

Appendix 1

Experts' opinions on threats to Leach's Storm-Petrels across their global range

Survey sent to participants.

Question 1.

What is your professional affiliation?

Non-governmental Organization
Government
Academic/ University
Other (specify)

Question 2.

Number of years working with Leach's storm-petrels

< 5 years
5 – 10 years
11 – 15 years
16 – 20 years
> 21 years

Question 3.

In which region does your field work take place?

Northwest Pacific
Northeast Pacific
Northwest Atlantic
Northeast Atlantic
Other (specify)

Question 4.

In which state/province/country does your field work take place?

Question 5.

What is the population size trend at your colony?

Increasing
Decreasing
Unknown

Question 6.

Rank these onshore threats/pressures at your colony (1 = most important, 7 = least important).

If you think a threat is not applicable to the colony, you can leave that threat blank.

Mammalian herbivores
Mammalian predators
Avian predators
Recreational disturbance
Habitat loss
Onshore light attraction and collision
Coastal development

Question 7.

If you answer "other" in the previous question, please explain what threat it is.

Question 8.

Rank these offshore threats/pressures at your colony (1 = most important, 5 = least important) during the breeding season.

If you think a threat is not applicable to the colony, you can leave that threat blank.

Mercury poisoning
Pesticides and contaminants (other than mercury)
Spatial shift in prey items
Offshore light attraction and collision
Bycatch

Question 9.

If you answer “other” in the previous question, please explain what threat it is.

Question 10.

Rank these offshore threats/pressures at your colony (1 = most important, 5 = least important) during the non-breeding season.

If you think a threat is not applicable to the colony, you can leave that threat blank.

Mercury poisoning
Pesticides and contaminants (other than mercury)
Spatial shift in prey items
Offshore light attraction and collision
Bycatch

Question 11.

If you answer “other” in the previous question, please explain what threat it is.

Table A1.S1. Number (percent) of northern and southern hemisphere storm-petrel species in each IUCN threat category.

	Number of species	Data Deficient	Least Concern	Near Threatened	Vulnerable	Endangered	Critically Endangered
Northern storm- petrels	18	0 (0)	8 (44)	3 (27)	4 (22)	2 (11)	1 (6)
Southern storm- petrels	9	2 (22)	5 (56)	0 (0.0)	0 (0)	1 (11)	1 (11)
Total	27	2 (7.5)	13 (48)	3 (11)	4 (15)	3 (11)	2 (7.5)

Table A1.S2. Example of hypothetical weighted score calculations with five threats and two survey participants. Participant 1 scored threat B the highest, so the score is the maximum out of the five threats = 5. Participant 2 scored only four of the five threats. For each threat, scores from both participants are added (i.e.: score = 9 for threat A). The sum of the scores is 29. The percent score for threat A is 9/29 (i.e.: 31.03%).

Threat	Participant		Weighted score		Σ of weighted scores	Percent
	1	2	1	2		
A	2	1	4	5	9	31.03
B	1	3	5	3	8	27.59
C	3	2	3	4	7	24.14
D	5	4	1	2	3	10.34
E	4		2	0	2	6.90
Total					29	100

Table A1.S3: Mean \pm SD (median / IQR) ranking of each terrestrial threat at the global, basin, and jurisdiction scale (number of responses).

	Mammalian Herbivore	Mammalian Predator	Avian predator	Disturbance	Habitat Loss	Coastal Development	Light Attraction	Unknown
Global (39)	4.7 \pm 1.7 (5 / 2.2)	5.3 \pm 1.7 (6 / 3.0)	6.3 \pm 0.9 (6 / 1.0)	3.3 \pm 1.8 (3 / 2.0)	4.8 \pm 1.0 (5 / 1.0)	4.0 \pm 2.0 (4 / 2.0)	4.9 \pm 1.4 (5 / 2.0)	5.5 \pm 2.1 (5.5 / 1.5)
West Pacific (2)	NA	NA	6.0 \pm 1.4 (6 / 1.0)	NA	6.0	6.0	5.0	7.0
JP (2)	NA	NA	6.0 \pm 1.4 (6 / 1.0)	NA	6.0	6.0	5.0	7.0
East Pacific (8)	2.0	6.8 \pm 0.4 (7 / 0.0)	5.9 \pm 0.7 (6 / 0.5)	4.0 \pm 2.4 (4 / 1.5)	6.0	4.0	5.2 \pm 1.3 (5 / 0.8)	4.0
AK (2)	NA	7.0 \pm 0.0 (7 / 0.0)	6.0 \pm 0.0 (6 / 0.0)	4.0	NA	NA	5.0	NA
BC (3)	2.0	6.5 \pm 0.7 (6.5 / 0.5)	6.0 \pm 1.4 (6 / 1.0)	1.0	NA	4.0	5.0 \pm 2.8 (5 / 2.0)	NA
CA (2)	NA	7.0 \pm 0.0 (7 / 0.0)	5.5 \pm 0.7 (5.5 / 0.5)	4.0	NA	NA	5.5 \pm 0.7 (5.5 / 0.5)	4.0
MX (1)	0.0	0.0	6.0	7.0	0.0	0.0	5.0	NA
West Atlantic (24)	4.6 \pm 1.7 (5 / 2.5)	4.9 \pm 1.8 (5 / 2.5)	6.4 \pm 0.8 (6.5 / 1.0)	2.9 \pm 1.3 (3 / 1.0)	4.7 \pm 1.0 (5 / 1.0)	4.1 \pm 2.0 (4 / 2.0)	5.1 \pm 1.3 (5 / 2.0)	NA
NL (6)	2.0	4.5 \pm 0.6 (4.5 / 1.0)	6.7 \pm 0.5 (7 / 0.8)	1.7 \pm 1.2 (1 / 1.0)	3.6 \pm 0.5 (4.0 / 1.0)	3.6 \pm 1.3 (3 / 2.0)	6.2 \pm 0.8 (6 / 0.8)	NA
NB (5)	3.3 \pm 1.2 (4 / 1.0)	4.2 \pm 2.3 (5 / 2.0)	6.4 \pm 0.5 (6 / 1.0)	3.3 \pm 0.6 (3 / 0.5)	5.8 \pm 1.3 (6 / 0.8)	4.0 \pm 1.4 (4 / 1.0)	5.7 \pm 1.2 (5 / 1.0)	NA
NS (8)	5.8 \pm 0.4 (6 / 0.0)	4.9 \pm 2.0 (5 / 3.0)	6.8 \pm 0.5 (7 / 0.2)	3.7 \pm 2.1 (3 / 2.0)	4.8 \pm 0.5 (5 / 0.2)	1.0	4.2 \pm 0.8 (4 / 1.0)	NA
ME (2)	7.0	6.5 \pm 0.7 (6.5 / 0.5)	5.5 \pm 0.7 (5.5 / 0.5)	4.0	5.0	NA	3.0	NA
PM (2)	3.0	NA	5.0 \pm 1.4 (5 / 1.0)	2.5 \pm 0.7 (2.5 / 0.5)	5.0 \pm 0.0 (5 / 0.0)	7.0 \pm 0.0 (7 / 0.0)	5.00 \pm 1.4 (5 / 1.0)	NA

QC (1)	NA	7.0	6.0	NA	5.0	NA	4.0	NA
East Atlantic (5)	5.5 ± 0.6 (5.5 / 1.0)	5.0 ± 1.4 (5.5 / 1.5)	6.4 ± 1.3 (7 / 0.0)	4.0 ± 2.6 (3 / 2.5)	4.5 ± 0.7 (4.5 / 0.5)	1.0	3.0 ± 1.0 (3 / 1.0)	NA
UK (3)	5.3 ± 0.6 (5 / 0.5)	5.7 ± 0.6 (6 / 0.5)	7.0 ± 0.0 (7 / 0.0)	2.5 ± 0.7 (2.5 / 0.5)	4.0	NA	3.5 ± 0.7 (3.5 / 0.5)	NA
IS (1)	NA	NA	7.0	NA	NA	NA	NA	NA
FO (1)	6.0	3.0	4.0	7.0	5.0	1.0	2.0	NA

Table A1.S4: Mean \pm SD (median / IQR) ranking of each at/sea threat during the breeding season at the global, basin, and jurisdiction scale (number of responses).

	Mercury	Pesticide	Light attraction	Bycatch	Spatial Shift in prey	Weather events	Prey depletion	Unknown
Global (39)	3.7 \pm 1.0 (4.0 / 1)	3.0 \pm 1.0 (3 / 2.0)	3.6 \pm 1.2 (4 / 3.0)	1.4 \pm 0.9 (1 / 0.0)	4.3 \pm 1.0 (5 / 1.2)	5.0	4.3 \pm 0.6 (4 / 0.5)	5.0
West Pacific (2)	NA	NA	NA	NA	NA	NA	NA	5.0 \pm 0.0 (5 / 0.0)
JP (2)	NA	NA	NA	NA	NA	NA	NA	5.0 \pm 0.0 (5 / 0.0)
East Pacific (8)	2.7 \pm 1.5 (3 / 1.5)	3.5 \pm 1.3 (3.5 / 1.5)	4.4 \pm 0.8 (5 / 1.0)	2.3 \pm 1.5 (2 / 1.5)	4.2 \pm 1.0 (4.5 / 1.2)	NA	NA	5.0
AK (2)	4.0	3.0	4.0 \pm 1.4 (4 / 1.0)	4.0	5.0	NA	NA	NA
BC (3)	2.0 \pm 1.4 (2 / 1.0)	3.0 \pm 1.4 (3 / 1.0)	5.0 \pm 0.0 (5 / 0.0)	1.5 \pm 0.7 (1.5 / 0.5)	3.5 \pm 0.7 (3.5 / 0.5)	NA	NA	NA
CA (2)	NA	5.0	4.0	NA	NA	NA	NA	5.0
MX (1)	NA	NA	4.0	NA	5.0	NA	NA	NA
West Atlantic (22)	3.9 \pm 0.9 (4 / 1.8)	2.8 \pm 0.9 (3 / 1.0)	3.4 \pm 1.2 (3 / 2.2)	1.0 \pm 0.0 (1 / 0.0)	4.2 \pm 1.0 (5 / 1.8)	NA	4.3 \pm 0.6 (4 / 0.5)	NA
NL (6)	4.0 \pm 0.7 (4 / 0.0)	2.7 \pm 0.8 (2.5 / 1.0)	4.8 \pm 0.4 (5 / 0.0)	1.0	3.2 \pm 0.5 (3 / 0.2)	NA	NA	NA
NB (5)	4.0 \pm 1.2 (4 / 2.0)	2.5 \pm 0.6 (2.5 / 1.5)	2.5 \pm 1.0 (2 / 0.5)	1.0 \pm 0.0 (1 / 0.0)	4.2 \pm 1.0 (4.5 / 1.2)	NA	4.5 \pm 0.7 (4.5 / 0.5)	NA
NS (8)	3.6 \pm 1.1 (4 / 1.0)	2.5 \pm 0.6 (2.5 / 1.0)	3.2 \pm 0.8 (3 / 0.8)	1.0 \pm 0.0 (1 / 0.0)	4.4 \pm 1.1 (5 / 0.5)	NA	NA	NA
ME (1)	3.0	4.0	2.0	NA	5.0	NA	NA	NA
PM (2)	4.5 \pm 0.7 (4.5 / 0.5)	3.5 \pm 0.7 (3.5 / 0.5)	2.5 \pm 0.7 (2.5 / 0.5)	1.0	5.0	NA	NA	NA
East Atlantic (4)	3.0	4.0	2.0	NA	5.0 \pm 0.0	5.0	NA	5.0

					(5 / 0.0)			
UK (3)	3.0	4.0	2.0	NA	5.0	5.0	NA	5.0
FO (1)	NA	NA	NA	NA	5.0	NA	NA	NA

Table A1.S5: Mean \pm SD (median / IQR) ranking of each at/sea threat during the non-breeding season at the global, basin, and jurisdiction scale (number of responses).

	Mercury	Pesticide	Light attraction	Bycatch	Spatial Shift in prey	Weather events	Prey depletion	Unknown
Global (39)	3.3 \pm 1.3 (4 / 2.0)	2.7 \pm 1.1 (3 / 1.0)	3.9 \pm 1.2 (4 / 2.0)	1.8 \pm 1.1 (1 / 1.5)	3.9 \pm 1.2 (4 / 2.0)	3.7 \pm 1.2 (3 / 1.0)	3.8 \pm 1.8 (5 / 2.0)	4.6 \pm 0.5 (5 / 1.0)
West Pacific (2)	NA	NA	NA	NA	NA	NA	NA	5.0 \pm 0.0 (5 / 0.0)
JP (2)	NA	NA	NA	NA	NA	NA	NA	5.0 \pm 0.0 (5 / 0.0)
East Pacific (8)	2.7 \pm 1.5 (3 / 1.5)	2.7 \pm 0.6 (3 / 0.5)	4.5 \pm 0.8 (5 / 0.8)	2.3 \pm 1.5 (2 / 1.5)	4.5 \pm 0.6 (4.5 / 1.0)	NA	NA	4.0
AK (2)	4.0	3.0	4.0 \pm 1.4 (4 / 1.0)	4.0	5.0	NA	NA	NA
BC (3)	2.0 \pm 1.4 (2 / 1.0)	2.5 \pm 0.7 (2.5 / 0.5)	5.0 \pm 0.0 (5 / 0.0)	1.5 \pm 0.7 (1.5 / 0.5)	4.0 \pm 0.0 (4 / 0.0)	NA	NA	NA
CA (2)	NA	NA	NA	NA	NA	NA	NA	4.0
MX (1)	NA	NA	4.0	NA	5.0	NA	NA	NA
West Atlantic (22)	3.5 \pm 1.3 (4 / 2.0)	2.6 \pm 1.1 (3 / 1.0)	3.9 \pm 1.2 (4 / 2.0)	1.6 \pm 0.9 (1 / 1.2)	3.7 \pm 1.1 (4 / 1.5)	3.0 \pm 0.0 (3 / 0.0)	3.5 \pm 1.9 (4 / 2.5)	NA
NL (6)	3.0 \pm 1.4 (2 / 2.0)	2.2 \pm 1.0 (2.5 / 1.0)	4.7 \pm 0.5 (5 / 0.8)	1.0	3.7 \pm 1.0 (4 / 0.8)	3.0 \pm 0.0 (3 / 0.0)	1.0	NA
NB (5)	3.2 \pm 1.6 (4 / 2.0)	2.5 \pm 0.6 (2.5 / 1.0)	3.8 \pm 1.3 (4 / 2.0)	1.5 \pm 1.0 (1 / 0.5)	4.0 \pm 1.2 (4 / 1.0)	NA	3.0	NA
NS (8)	3.5 \pm 1.0 (4 / 0.5)	2.0 \pm 1.0 (2 / 1.0)	3.8 \pm 1.2 (4 / 1.5)	3.0	3.8 \pm 1.0 (3.5 / 1.8)	NA	5.0	NA
ME (1)	4.0	5.0	3.0	1.0	2.0	NA	NA	NA
PM (2)	5.0 \pm 0.0 (5 / 0.0)	4.0 \pm 0.0 (4 / 0.0)	2.0 \pm 1.4 (2 / 1.0)	2.0	3.0	NA	NA	NA
East Atlantic (5)	3.0	4.0	2.0	NA	5.0 \pm 0.0	5.0	NA	5.0

					(5 / 0.0)			
UK (3)	3.0	4.0	2.0	NA	5.0	5.0	NA	5.0
IS (1)	NA	NA	NA	NA	NA	NA	5.0	NA
FO (1)	NA	NA	NA	NA	5.0	NA	NA	NA
