

## Pros and cons of using seabirds as ecological indicators

J. M. Durant<sup>1,\*</sup>, D. Ø. Hjermmann<sup>1</sup>, M. Frederiksen<sup>2</sup>, J. B. Charrassin<sup>3</sup>, Y. Le Maho<sup>4</sup>, P. S. Sabarros<sup>1</sup>,  
R. J. M. Crawford<sup>5,6</sup>, N. Chr. Stenseth<sup>1,7</sup>

<sup>1</sup>Centre for Ecological and Evolutionary Synthesis (CEES), Department of Biology, University of Oslo, PO Box 1066 Blindern, 0316 Oslo, Norway

<sup>2</sup>National Environmental Research Institute, Department of Arctic Environment, Aarhus University, Frederiksborgvej 399, 4000 Roskilde, Denmark

<sup>3</sup>Laboratoire d'Océanographie et du Climat: Expérimentation et Approches Numériques, Département Milieux et Peuplements Aquatiques, Muséum National d'Histoire Naturelle, 43 rue Cuvier, 75231 Paris Cedex 05, France

<sup>4</sup>Institut Pluridisciplinaire Hubert Curien, Département Ecologie, Physiologie et Ethologie, UMR 7178 CNRS-ULP, 23 rue Becquerel, 67087 Strasbourg Cedex 2, France

<sup>5</sup>Marine and Coastal Management, Department of Environmental Affairs and Tourism, Private Bag X2, Rogge Bay 8012, South Africa

<sup>6</sup>Animal Demography Unit, Department of Zoology, University of Cape Town, Rondebosch 7701, South Africa

<sup>7</sup>Institute of Marine Research, Flødevigen Marine Research Station, 4817 His, Norway

Email: j.m.durant@bio.uio.no

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**Table S1.** Relationship between environmental and biological variables as found in the seabird literature (a selection of seabird literature, 127 articles). Environmental variables include: weather = weather packages (ENSO, NAO...); oceanography = fronts, eddies, currents, etc.; SST = sea surface temperature; prey = prey abundance, location, etc.; integrate index = index issue from statistical calculation (e.g. principal component). Biological variables include: behaviour = behaviour (outside foraging), phenology, etc.; breeding success = breeding success sensus largo that encompasses the fledging success (no. chicks that fledge per no. chicks in nest), survival through the first year, etc.; condition = body condition (mass, reserves, etc.); diet = diet, food deliveries etc; foraging = foraging activity, transit, exploration, diving, etc.; growth = chick growth (mass, linear, development, etc.); population = population parameters, etc.; survival = adult survival. Last two rows of the table: references from telemetry (GPS, satellite, loggers...) studies and reviews

Environmental variable	Biological variable	Source
Fishing	Breeding success	46
	Diet	116
	Survival	46, 112
Ice extent	Behaviour	54
	Breeding success	2, 54, 75
	Growth	53
	Population	34, 69, 76
	Survival	75
Integrate index	Population	38, 101
Oceanography	Behaviour	110, 123
	Breeding success	92
	Condition	12
	Diet	91, 123
	Distribution	70
	Foraging	5, 52, 92, 98, 110, 114, 123, 122, 121
	Population	3, 92
	Survival	7, 77
Prey	Behaviour	63, 82, 86, 94, 100, 109, 123
	Breeding success	9, 30, 33, 41, 43, 47, 48, 55, 57, 78, 80, 83, 84, 86, 87, 90, 94, 96, 108
	Condition	86, 96
	Diet	8, 20, 28, 37, 55, 58, 65, 84, 88, 123
	Distribution	10
	Foraging	25, 27, 58, 85, 86, 123
	Growth	82, 94, 96, 97
	Population	29, 31, 32, 33, 47, 82
	Survival	100

Table S1 (continued)

Environmental variable	Biological variable	Source
SST	Behaviour	22, 26, 45, 119
	Breeding success	2, 13, 39, 41, 42, 45, 46, 48, 56, 61, 72, 75, 79, 81, 90, 113
	Condition	61
	Diet	39, 89
	Foraging	59, 115
	Growth	56
	Population	73, 113, 120
	Survival	6, 46, 61, 64, 75, 81
Weather	Behaviour	45, 99
	Breeding success	1, 4, 40, 45, 61, 62, 66, 74, 81, 105, 106, 113
	Condition	61, 95
	Growth	11, 62, 66, 125
	Population	18, 21, 113
	Survival	49, 60, 61, 81, 95, 106
Telemetry	Behaviour	22, 26, 86, 109, 110, 119, 123, 126
	Breeding success	86
	Condition	86
	Diet	117, 123
	Foraging	5, 15, 23, 25, 36, 44, 59, 86, 102, 103, 110, 111, 114, 115, 117, 121, 122, 123, 124
	Other	16, 24, 104, 107, 127
Review		14, 16, 17, 19, 35, 50, 51, 67, 68, 71, 93, 118

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