



West of Orkney Windfarm

Offshore Ornithology Supplementary Environmental Information

Annex 3C: Word output files from Caneco shiny app

Date:	20 August 2024
Tel:	0141 342 5404
Web:	www.macarthurgreen.com
Address:	93 South Woodside Road Glasgow G20 6NT

West of Orkney Windfarm: Annex 3C: Word output files from Caneco shiny app.



These word documents are outputs from the Caneco Shiny app. Each word document corresponds to a single run of the tool. The naming convention of each file is:

dcrm = deterministic (Band) model in the shiny app scrm = stochastic model

the number corresponds to the date when the tool was run, 06062024 =

the next two letters describes the species: AE: arctic tern NX: great skua GB: great black backed gull GX: gannet KI: kittiwake

MLS = most likely scenario WCS = worst case scenario

06 June 2024

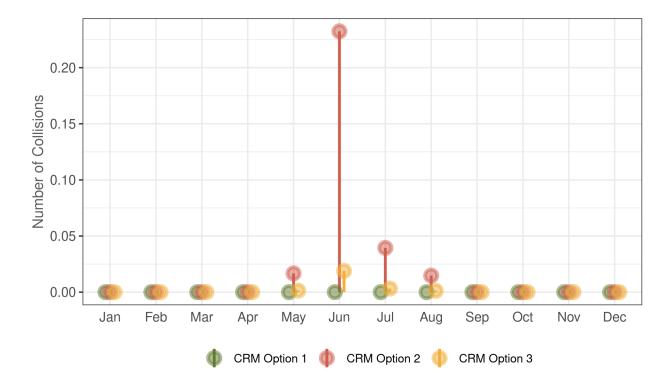
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- Simulation mode: Deterministic
- Number of iterations: Not applicable
- Wind farm scenarios specified:
 - West of Orkney, containing the following species:
 - Arctic Tern

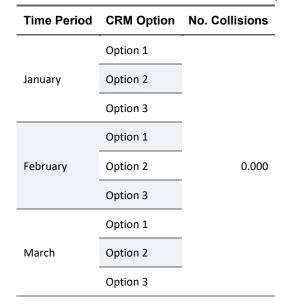
2 WEST OF ORKNEY

2.1 ARCTIC TERN

Figure 1: Collision risk estimates for Arctic Tern at West of Orkney, by Month



Collision estimates for Arctic Tern at West of Orkney, by Month



Time Period	CRM Option	No. Collisions
	Option 1	
April	Option 2	
	Option 3	
	Option 1	-
May	Option 2	0.017
	Option 3	0.001
	Option 1	0.000
June	Option 2	0.232
	Option 3	0.019
	Option 1	0.000
July	Option 2	0.039
	Option 3	0.003
	Option 1	0.000
August	Option 2	0.015
	Option 3	0.001
	Option 1	
September	Option 2	
	Option 3	-
	Option 1	
October	Option 2	
	Option 3	0.000
	Option 1	0.000
November	Option 2	
	Option 3	
	Option 1	
Desember	Option 2	
December	option 2	

Band, B. (2012) Using a collision risk model to assess bird collision risks for offshore windfarms. SOSS report, The Crown Estate.

06 June 2024

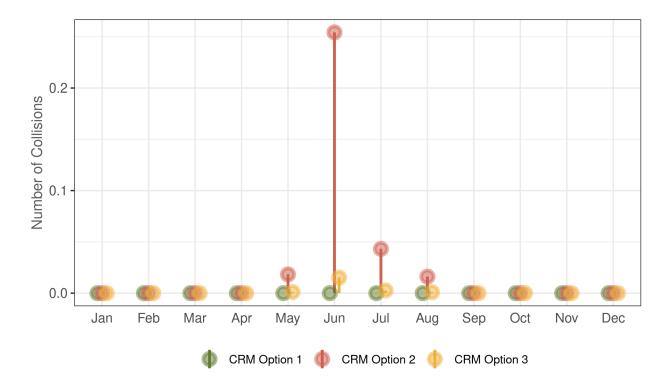
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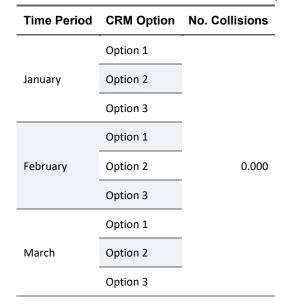
2 WEST OF ORKNEY

2.1 ARCTIC TERN

Figure 1: Collision risk estimates for Arctic Tern at West of Orkney, by Month



Collision estimates for Arctic Tern at West of Orkney, by Month



Time Period	CRM Option	No. Collisions
	Option 1	
April	Option 2	
	Option 3	
	Option 1	
May	Option 2	0.018
	Option 3	0.001
	Option 1	0.000
June	Option 2	0.254
	Option 3	0.015
	Option 1	0.000
July	Option 2	0.043
	Option 3	0.003
	Option 1	0.000
August	Option 2	0.016
	Option 3	0.001
	Option 1	
September	Option 2	
	Option 3	
	Option 1	
October	Option 2	
	Option 3	0.000
	Option 1	0.000
November	Option 2	
	Option 3	
	Option 1	
December	Option 2	-

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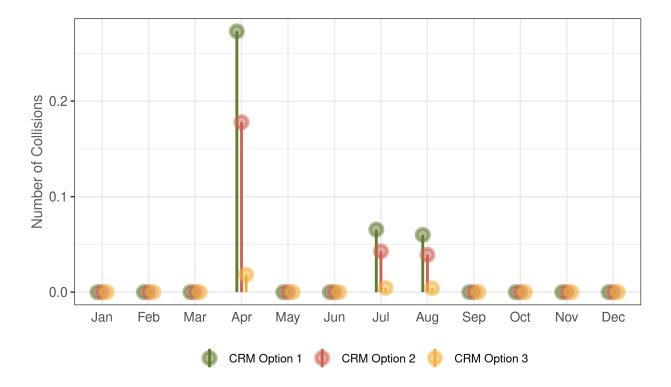
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- Simulation mode: Deterministic
- Number of iterations: Not applicable
- Wind farm scenarios specified:
 - **WoW**, containing the following species:
 - Great skua

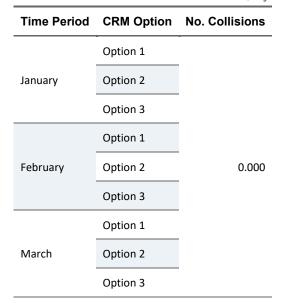
2 WoW

2.1 GREAT SKUA

Figure 1: Collision risk estimates for Great skua at WoW, by Month



Collision estimates for Great skua at WoW, by



April Option 2 0.178 Option 3 0.018 Option 1 0000 May Option 2 Option 3 0.000 June Option 1 Option 2 0000 Option 3 0.000 June Option 1 Option 2 0000 Option 3 0.000 June Option 1 Option 3 0.000 Option 3 0.000 July Option 1 0.060 Option 3 0.004 0.004 August Option 1 0.060	Time Period	CRM Option	No. Collisions
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December Option 2		Option 3	
		Option 1	
Option 3	December	Option 2	-
		Option 3	

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06 June 2024

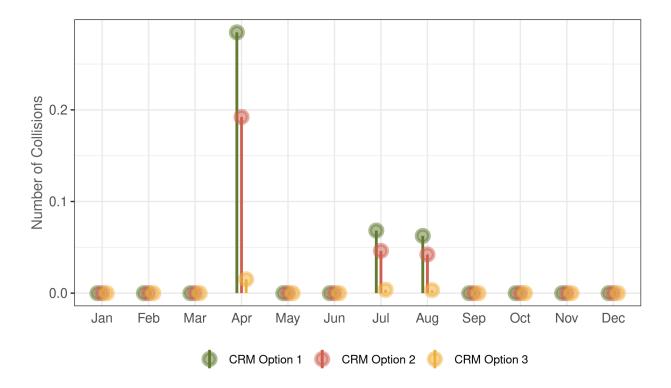
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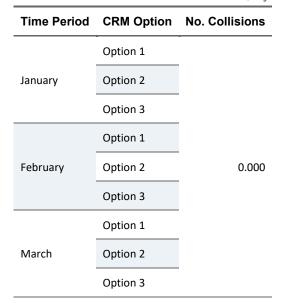
- Simulation mode: Deterministic
- Number of iterations: Not applicable
- Wind farm scenarios specified:
 - **WoW**, containing the following species:
 - Great skua

2 WoW

2.1 GREAT SKUA

Figure 1: Collision risk estimates for Great skua at WoW, by Month





Time Period	CRM Option	No. Collisions
	Option 1	0.285
April	Option 2	0.192
	Option 3	0.015
	Option 1	
May	Option 2	
	Option 3	0.000
	Option 1	0.000
June	Option 2	
	Option 3	
	Option 1	0.068
July	Option 2	0.046
	Option 3	0.004
	Option 1	0.062
August	Option 2	0.042
	Option 3	0.003
	Option 1	
September	Option 2	
	Option 3	
	Option 1	
October	Option 2	
	Option 3	0.000
	Option 1	. 0.000
November	Option 2	
	Option 3	
	Option 1	
December	Option 2	
December	<u> </u>	

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26 May 2024

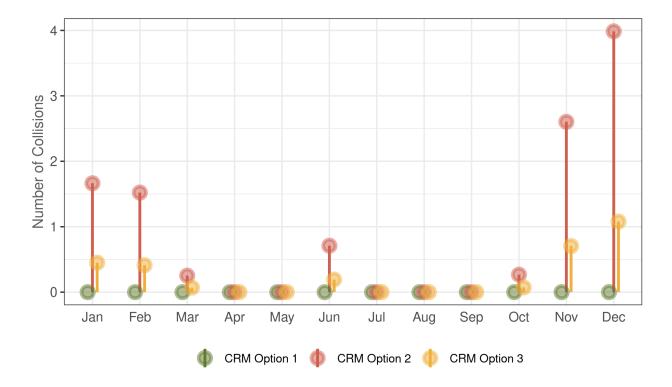
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- Simulation mode: Deterministic
- Number of iterations: Not applicable
- Wind farm scenarios specified:
 - West of Orkney, containing the following species:
 - Great Black-backed Gull

2 WEST OF ORKNEY

2.1 GREAT BLACK-BACKED GULL

Figure 1: Collision risk estimates for Great Black-backed Gull at West of Orkney, by Month



Collision estimates for Great Black-backed Gull at West of Orkney, by Month

Time Period	CRM Option	No. Collisions
	Option 1	0.000
January	Option 2	1.664
	Option 3	0.450
	Option 1	0.000
February	Option 2	1.522
	Option 3	0.412
	Option 1	0.000
March	Option 2	0.252
	Option 3	0.068

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December Option 2 3.985		Option 3	0.704
		Option 1	0.000
Option 3 1.079	December	Option 2	3.985
		Option 3	1.079

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26 May 2024

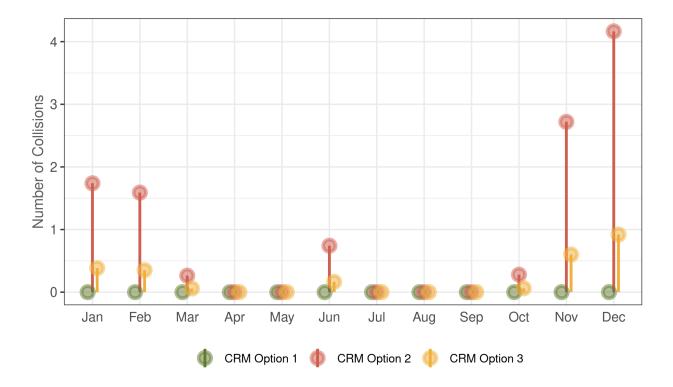
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2 WEST OF ORKNEY

2.1 GREAT BLACK-BACKED GULL

Figure 1: Collision risk estimates for Great Black-backed Gull at West of Orkney, by Month



Collision estimates for Great Black-backed Gull at West of Orkney, by Month

Time Period	CRM Option	No. Collisions
	Option 1	0.000
January	Option 2	1.739
	Option 3	0.384
	Option 1	0.000
February	Option 2	1.590
	Option 3	0.351
	Option 1	0.000
March	Option 2	0.264
	Option 3	0.058

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NovemberOption 22.720Option 30.601Option 10.000DecemberOption 24.165		Option 3	0.062
Option 3 0.601 Option 1 0.000 December Option 2 4.165		Option 1	0.000
Option 10.000DecemberOption 24.165	November	Option 2	2.720
December Option 2 4.165		Option 3	0.601
		Option 1	0.000
Option 3 0.920	December	Option 2	4.165
		Option 3	0.920

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26 May 2024

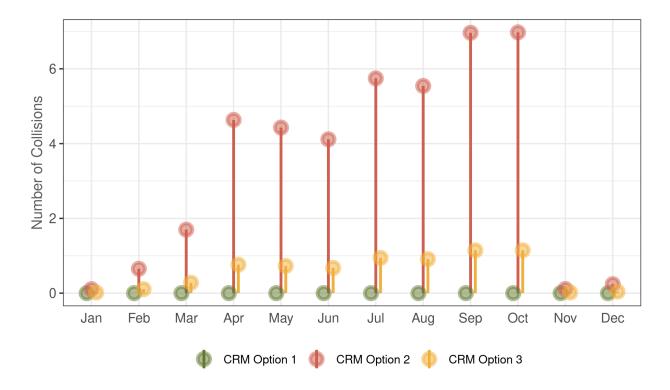
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- Simulation mode: Deterministic
- Number of iterations: Not applicable
- Wind farm scenarios specified:
 - West of Orkney, containing the following species:
 - Northern Gannet

2 WEST OF ORKNEY

2.1 NORTHERN GANNET

Figure 1: Collision risk estimates for Northern Gannet at West of Orkney, by Month



Collision estimates for Northern Gannet at West of Orkney, by Month

Time Period	CRM Option	No. Collisions
	Option 1	0.000
January	Option 2	0.108
	Option 3	0.018
	Option 1	0.000
February	Option 2	0.652
	Option 3	0.107
	Option 1	0.000
March	Option 2	1.700
	Option 3	0.279

Time Period	CRM Option	No. Collisions
	Option 1	0.000
April	Option 2	4.634
	Option 3	0.761
	Option 1	0.000
May	Option 2	4.428
	Option 3	0.728
	Option 1	0.000
June	Option 2	4.115
	Option 3	0.676
	Option 1	0.000
July	Option 2	5.745
	Option 3	0.944
	Option 1	0.000
August	Option 2	5.543
	Option 3	0.911
	Option 1	0.000
September	Option 2	6.964
	Option 3	1.144
	Option 1	0.000
October	Option 2	6.976
	Option 3	1.146
	Option 1	0.000
November	Option 2	0.112
	Option 3	0.018
	Option 1	0.000
December	Option 2	0.241
	Option 3	0.040

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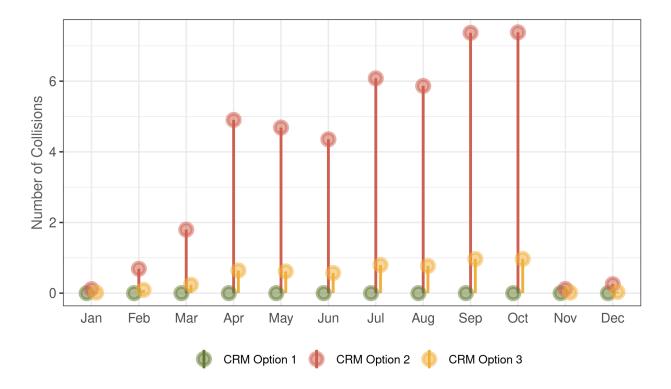
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- Simulation mode: Deterministic
- Number of iterations: Not applicable
- Wind farm scenarios specified:
 - West of Orkney, containing the following species:
 - Northern Gannet

2.1 NORTHERN GANNET

Figure 1: Collision risk estimates for Northern Gannet at West of Orkney, by Month



Collision estimates for Northern Gannet at West of Orkney, by Month

Time Period	CRM Option	No. Collisions
	Option 1	0.000
January	Option 2	0.114
	Option 3	0.015
	Option 1	0.000
February	Option 2	0.690
	Option 3	0.091
	Option 1	0.000
March	Option 2	1.798
	Option 3	0.236

Time Period	CRM Option	No. Collisions
	Option 1	0.000
April	Option 2	4.903
	Option 3	0.644
	Option 1	0.000
May	Option 2	4.686
	Option 3	0.615
	Option 1	0.000
June	Option 2	4.354
	Option 3	0.571
	Option 1	0.000
July	Option 2	6.079
	Option 3	0.798
	Option 1	0.000
August	Option 2	5.865
	Option 3	0.770
	Option 1	0.000
September	Option 2	7.369
	Option 3	0.967
	Option 1	0.000
October	Option 2	7.381
	Option 3	0.969
	Option 1	0.000
November	Option 2	0.119
	Option 3	0.016
	Option 1	0.000
December	Option 2	0.255
	Option 3	0.033

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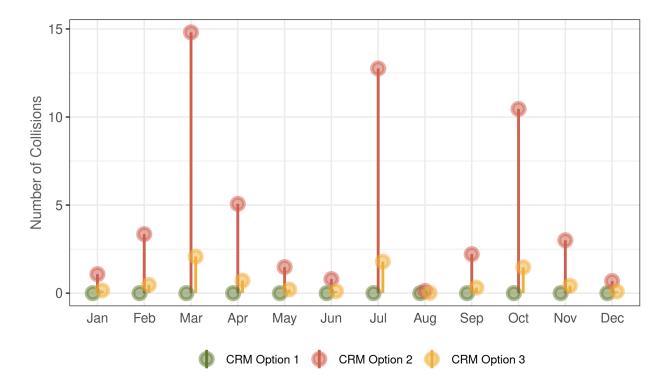
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- Simulation mode: Deterministic
- Number of iterations: Not applicable
- Wind farm scenarios specified:
 - West of Orkney, containing the following species:
 - Black-legged Kittiwake

2.1 BLACK-LEGGED KITTIWAKE

Figure 1: Collision risk estimates for Black-legged Kittiwake at West of Orkney, by Month



Collision estimates for Black-legged Kittiwake at West of Orkney, by Month

Time Period	CRM Option	No. Collisions
	Option 1	0.000
January	Option 2	1.078
	Option 3	0.152
	Option 1	0.000
February	Option 2	3.350
	Option 3	0.471
	Option 1	0.000
March	Option 2	14.808
	Option 3	2.082

Time Period	CRM Option	No. Collisions
	Option 1	0.000
April	Option 2	5.071
	Option 3	0.713
	Option 1	0.000
Мау	Option 2	1.480
	Option 3	0.208
	Option 1	0.000
June	Option 2	0.798
	Option 3	0.112
	Option 1	0.000
July	Option 2	12.755
	Option 3	1.793
	Option 1	0.000
August	Option 2	0.125
	Option 3	0.018
	Option 1	0.000
September	Option 2	2.214
	Option 3	0.311
	Option 1	0.000
October	Option 2	10.459
	Option 3	1.470
	Option 1	0.000
November	Option 2	3.002
	Option 3	0.422
	Option 1	0.000
December	Option 2	0.688
	Option 3	0.097

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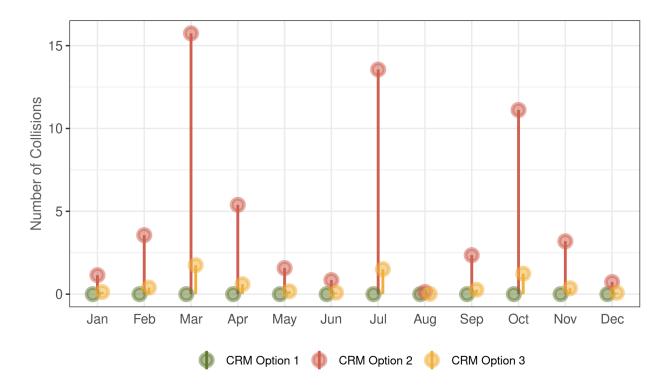
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- Simulation mode: Deterministic
- Number of iterations: Not applicable
- Wind farm scenarios specified:
 - West of Orkney, containing the following species:
 - Black-legged Kittiwake

2.1 BLACK-LEGGED KITTIWAKE

Figure 1: Collision risk estimates for Black-legged Kittiwake at West of Orkney, by Month



Collision estimates for Black-legged Kittiwake at West of Orkney, by Month

Time Period	CRM Option	No. Collisions
	Option 1	0.000
January	Option 2	1.146
	Option 3	0.128
	Option 1	0.000
February	Option 2	3.561
	Option 3	0.396
	Option 1	0.000
March	Option 2	15.742
	Option 3	1.752

Time Period	CRM Option	No. Collisions
	Option 1	0.000
April	Option 2	5.390
	Option 3	0.600
	Option 1	0.000
May	Option 2	1.573
	Option 3	0.175
	Option 1	0.000
June	Option 2	0.848
	Option 3	0.094
	Option 1	0.000
July	Option 2	13.560
	Option 3	1.509
	Option 1	0.000
August	Option 2	0.133
	Option 3	0.015
	Option 1	0.000
September	Option 2	2.354
	Option 3	0.262
	Option 1	0.000
October	Option 2	11.119
	Option 3	1.237
	Option 1	0.000
November	Option 2	3.192
	Option 3	0.355
	Option 1	0.000
December	Option 2	0.731
	Option 3	0.081

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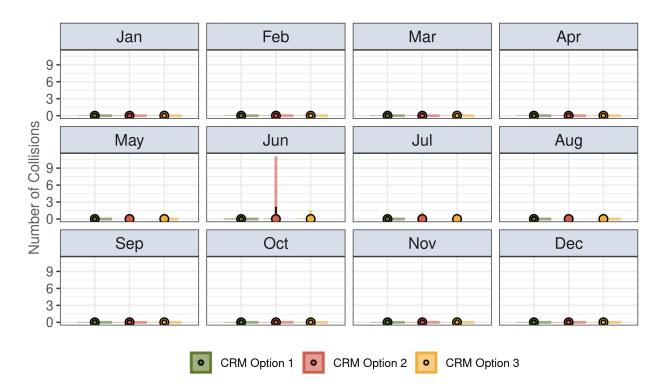
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- Simulation mode: Stochastic
- Number of iterations: 1000
- Wind farm scenarios specified:
 - West of Orkney, containing the following species:
 - Arctic Tern

2.1 ARCTIC TERN

Figure 1: Collision risk estimates for Arctic Tern at West of Orkney, by Month. Density distribution, median, 66% and 95% quantile intervals and quantile dotplots (each dot represents ~2% chance outcome) of simulated values



Summary statistics of collision estimates for Arctic Tern at West of Orkney, by Month

Time Period	CRM Option	Mean	Median	SD	сv	2.5%	97.5%
	Option 1					-	-
January	Option 2	_					
	Option 3						
	Option 1	0.000	0.000	0.000		0.000	0.000
February	Option 2	0.000	0.000	0.000		0.000	0.000
	Option 3						
March	Option 1	-					
	Option 2						

Time Period	CRM Option	Mean	Median	SD	cv	2.5%	97.5%
	Option 3						
	Option 1						
April	Option 2						
	Option 3	_					
	Option 1	-	_			_	
Мау	Option 2	0.023	_	0.065	280.973		0.172
	Option 3	0.002		0.008	345.023		0.020
	Option 1	0.000		0.000			0.000
June	Option 2	0.317	-	0.901	284.076	-	2.165
	Option 3	0.034	-	0.121	358.753		0.232
	Option 1	0.000	-	0.000		-	0.000
July	Option 2	0.051		0.105	207.748		0.301
	Option 3	0.005	-	0.014	259.401		0.036
	Option 1	0.000	_	0.000			0.000
August	Option 2	0.017	-	0.042	244.516		0.119
	Option 3	0.002	-	0.005	302.183		0.012
	Option 1		-			-	
September	Option 2						
	Option 3	-					
	Option 1	-					
October	Option 2	-					
	Option 3	0.000		0.000			0.000
	Option 1	0.000		0.000			0.000
November	Option 2	_					
	Option 3						
	Option 1	_					
December	Option 2	_					
	Option 3	-					

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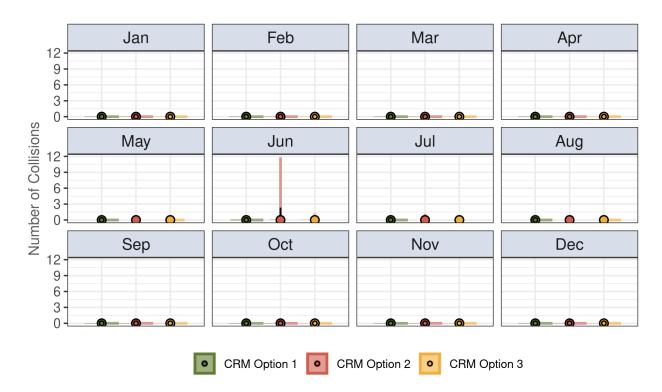
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- Simulation mode: Stochastic
- Number of iterations: 1000
- Wind farm scenarios specified:
 - West of Orkney, containing the following species:
 - Arctic Tern

2.1 ARCTIC TERN

Figure 1: Collision risk estimates for Arctic Tern at West of Orkney, by Month. Density distribution, median, 66% and 95% quantile intervals and quantile dotplots (each dot represents ~2% chance outcome) of simulated values



Summary statistics of collision estimates for Arctic Tern at West of Orkney, by Month

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 1					-	
January	Option 2						
	Option 3						
	Option 1	0.000	0.000	0.000		0.000	0.000
February	Option 2	0.000	0.000	0.000		0.000	0.000
	Option 3						
March	Option 1						
	Option 2						

Time Period	CRM Option	Mean	Median	SD	сѵ	2.5%	97.5%
	Option 3						
	Option 1						
April	Option 2	_					
	Option 3						
	Option 1	-					
Мау	Option 2	0.025		0.069	277.749		0.185
	Option 3	0.002		0.007	351.150		0.016
	Option 1	0.000		0.000			0.000
June	Option 2	0.343		0.962	280.468		2.332
	Option 3	0.028		0.101	365.628		0.190
	Option 1	0.000		0.000			0.000
July	Option 2	0.055		0.113	205.342		0.322
	Option 3	0.004		0.011	264.308		0.030
	Option 1	0.000		0.000			0.000
August	Option 2	0.019		0.045	242.160		0.129
	Option 3	0.001		0.004	307.860		0.010
	Option 1						
September	Option 2	-					
	Option 3						
	Option 1	-					
October	Option 2						
	Option 3			0.000			0.000
	Option 1	0.000		0.000			0.000
November	Option 2						
	Option 3	-					
	Option 1						
December	Option 2						
	Option 3	-					

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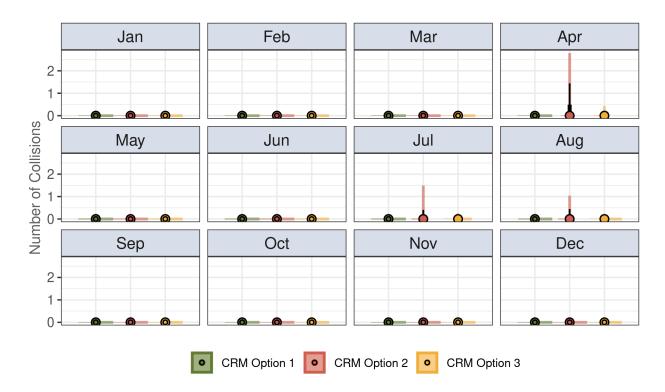
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- Simulation mode: Stochastic
- Number of iterations: 1000
- Wind farm scenarios specified:
 - West of Orkney, containing the following species:
 - Great skua

2.1 GREAT SKUA

Figure 1: Collision risk estimates for Great skua at West of Orkney, by Month. Density distribution, median, 66% and 95% quantile intervals and quantile dotplots (each dot represents ~2% chance outcome) of simulated values



Summary statistics of collision estimates for Great skua at West of Orkney, by Month

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
January	Option 1					-	
	Option 2						
	Option 3						
	Option 1	0.000	0.000	0.000		0.000	0.000
February	Option 2	0.000	0.000	0.000		0.000	0.000
	Option 3						
March	Option 1	-					
	Option 2						

Time Period	CRM Option	Mean	Median	SD	cv	2.5%	97.5%
	Option 3	_					
April	Option 1						
	Option 2	0.239		0.394	164.758		1.441
	Option 3	0.030		0.056	187.352		0.197
Мау	Option 1	_					
	Option 2						
	Option 3	_					
June	Option 1	0.000		0.000			0.000
	Option 2						
	Option 3						
	Option 1						
July	Option 2	0.060		0.134	222.114		0.407
	Option 3	0.008		0.020	260.675		0.057
August	Option 1	0.000		0.000			0.000
	Option 2	0.055		0.122	221.218	•	0.443
	Option 3	0.007		0.017	247.710		0.060
	Option 1	- 0.000				•	
September	Option 2						
	Option 3						
	Option 1						
October	Option 2						
	Option 3			0.000			0.000
November	Option 1			0.000			0.000
	Option 2						
	Option 3						
December	Option 1						
	Option 2						
	Option 3						

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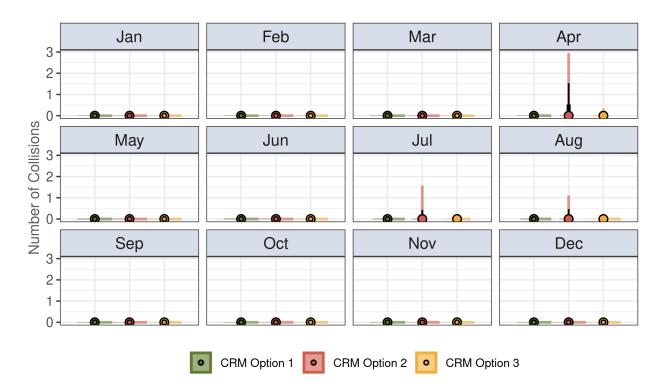
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- Simulation mode: Stochastic
- Number of iterations: 1000
- Wind farm scenarios specified:
 - West of Orkney, containing the following species:
 - Great skua

2.1 GREAT SKUA

Figure 1: Collision risk estimates for Great skua at West of Orkney, by Month. Density distribution, median, 66% and 95% quantile intervals and quantile dotplots (each dot represents ~2% chance outcome) of simulated values



Summary statistics of collision estimates for Great skua at West of Orkney, by Month

Time Period	CRM Option	Mean	Median	SD	сv	2.5%	97.5%
January	Option 1	- 0.000	0.000	0.000		0.000	0.000
	Option 2						
	Option 3						
February	Option 1						
	Option 2						
	Option 3						
March	Option 1						
	Option 2						

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 3	_					
April	Option 1					_	
	Option 2	0.256		0.420	163.659	_	1.531
	Option 3	0.025		0.048	189.272		0.166
Мау	Option 1	_	-			-	
	Option 2						
	Option 3						
June	Option 1	0.000		0.000			0.000
	Option 2	_					
	Option 3						
	Option 1	-					
July	Option 2	0.064	-	0.142	220.578		0.430
	Option 3	0.006		0.017	263.336	-	0.048
	Option 1	0.000		0.000			0.000
August	Option 2	0.059		0.130	219.895		0.468
	Option 3	0.006		0.015	249.569		0.050
	Option 1	- 0.000				-	
September	Option 2						
	Option 3						
October	Option 1						
	Option 2						
	Option 3						
November	Option 1			0.000			0.000
	Option 2						
	Option 3						
December	Option 1						
	Option 2						
	Option 3						

Band, B. (2012) Using a collision risk model to assess bird collision risks for offshore windfarms. SOSS report, The Crown Estate.

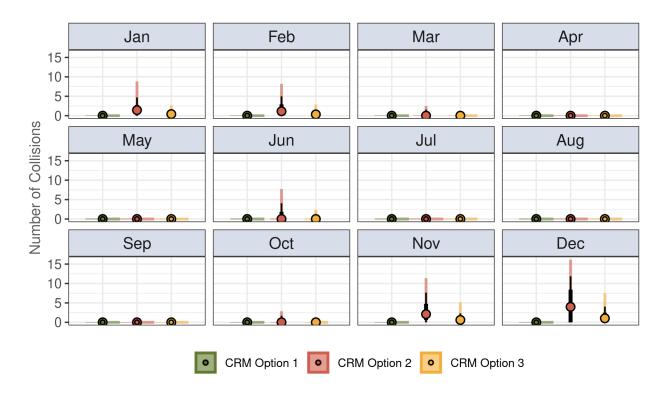
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- Simulation mode: Stochastic
- Number of iterations: 1000
- Wind farm scenarios specified:
 - West of Orkney WCS, containing the following species:
 - Great Black-backed Gull

2.1 GREAT BLACK-BACKED GULL

Figure 1: Collision risk estimates for Great Black-backed Gull at West of Orkney WCS, by Month. Density distribution, median, 66% and 95% quantile intervals and quantile dotplots (each dot represents ~2% chance outcome) of simulated values



Summary statistics of collision estimates for Great Black-backed Gull at West of Orkney WCS, by Month

		,					
Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 1	0.000	0.000	0.000			0.000
January	Option 2	1.675	1.427	1.253	74.777		4.686
	Option 3	0.490	0.409	0.391	79.793	•	1.497
	Option 1	0.000	0.000	0.000		0.000	0.000
February	Option 2	1.563	1.132	1.401	89.637	•	4.967
	Option 3	0.461	0.333	0.439	95.158		1.543
March	Option 1	0.000	0.000	0.000			0.000

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 2	0.240		0.450	187.750		1.543
	Option 3	0.071	-	0.138	193.803	•	0.454
	Option 1		-				
April	Option 2						
	Option 3	-					
	Option 1	0.000		0.000			0.000
May	Option 2						
	Option 3						
	Option 1	-					
June	Option 2	0.776	_	1.246	160.482		4.043
	Option 3	0.228		0.377	165.126		1.274
	Option 1		-			-	
July	Option 2						
	Option 3	_					
	Option 1						
August	Option 2	0.000		0.000			0.000
	Option 3	0.000		0.000			0.000
	Option 1	_					
September	Option 2						
	Option 3	_					
	Option 1						
October	Option 2	0.304		0.506	166.711		1.680
	Option 3	0.091	_	0.158	174.582		0.504
	Option 1	0.000		0.000			0.000
November	Option 2	2.674	2.099	2.105	78.735		7.644
	Option 3	0.779	0.610	0.646	82.906	ī	2.307
	Option 1	0.000	0.000	0.000			0.000
December	Option 2	4.207	3.979	3.890	92.457		11.850

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 3	1.240	1.032	1.213	97.854		4.045

Band, B. (2012) Using a collision risk model to assess bird collision risks for offshore windfarms. SOSS report, The Crown Estate.

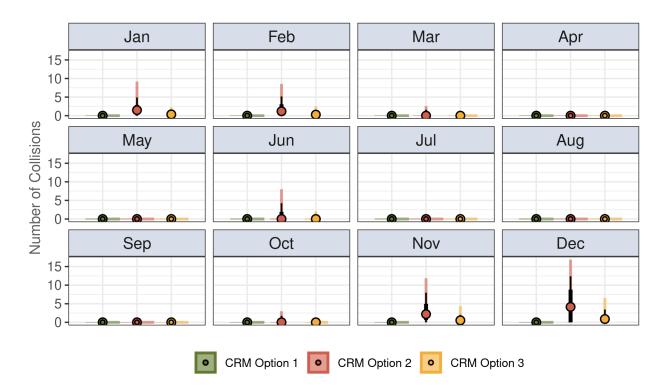
26 May 2024

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- Simulation mode: Stochastic
- Number of iterations: 1000
- Wind farm scenarios specified:
 - West of Orkney WCS, containing the following species:
 - Great Black-backed Gull

2.1 GREAT BLACK-BACKED GULL

Figure 1: Collision risk estimates for Great Black-backed Gull at West of Orkney WCS, by Month. Density distribution, median, 66% and 95% quantile intervals and quantile dotplots (each dot represents ~2% chance outcome) of simulated values



Summary statistics of collision estimates for Great Black-backed Gull at West of Orkney WCS, by Month

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 1	0.000	0.000	0.000			0.000
January	Option 2	1.749	1.491	1.307	74.740	-	4.890
	Option 3	0.419	0.349	0.335	79.840	•	1.307
	Option 1	0.000	0.000	0.000		0.000	0.000
February	Option 2	1.632	1.180	1.463	89.617	•	5.173
	Option 3	0.395	0.285	0.378	95.606		1.340
March	Option 1	0.000	0.000	0.000			0.000

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 2	0.250		0.470	187.727		1.610
	Option 3	0.061		0.118	193.906	-	0.390
	Option 1						
April	Option 2						
	Option 3						
	Option 1	0.000		0.000			0.000
Мау	Option 2						
	Option 3						
	Option 1						
June	Option 2	0.810		1.300	160.458		4.233
	Option 3	0.195	-	0.323	165.286		1.079
	Option 1					•	
July	Option 2						
	Option 3						
	Option 1						
August	Option 2	0.000		0.000			0.000
	Option 3	0.000		0.000			0.000
	Option 1	-					
September	Option 2						
	Option 3	_					
	Option 1						
October	Option 2	0.317		0.528	166.669		1.754
	Option 3	0.078		0.135	174.702		0.440
	Option 1	0.000		0.000			0.000
November	Option 2	2.792	2.190	2.198	78.703		7.969
	Option 3	0.666	0.521	0.552	82.825		2.015
	Option 1	0.000	0.000	0.000			0.000
December	Option 2	4.393	4.148	4.061	92.431		12.379

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 3	1.061	0.881	1.040	98.008		3.441

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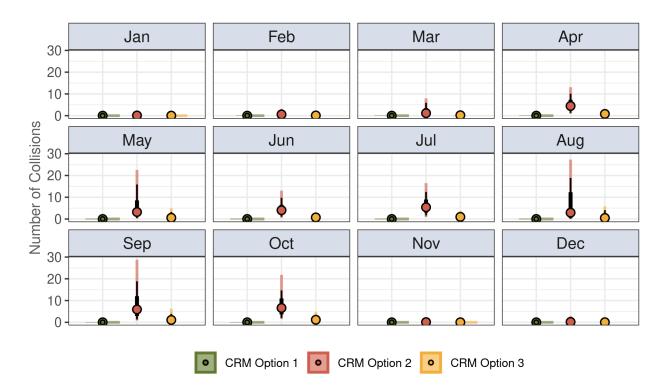
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- Simulation mode: Stochastic
- Number of iterations: 1000
- Wind farm scenarios specified:
 - West of Orkney WCS, containing the following species:
 - Northern Gannet

2.1 NORTHERN GANNET

Figure 1: Collision risk estimates for Northern Gannet at West of Orkney WCS, by Month. Density distribution, median, 66% and 95% quantile intervals and quantile dotplots (each dot represents ~2% chance outcome) of simulated values



Summary statistics of collision estimates for Northern Gannet at West of Orkney WCS, by Month

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 1	0.000	0.000	0.000			0.000
January	Option 2	0.115	0.088	0.125	108.530		0.443
	Option 3	0.022	0.015	0.026	118.415		0.090
	Option 1	0.000	0.000	0.000		0.000	0.000
February	Option 2	0.663	0.569	0.555	83.653	-	1.971
	Option 3	0.125	0.093	0.117	93.372		0.421
March	Option 1	0.000	0.000	0.000			0.000

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 2	1.791	1.146	1.725	96.293	0.070	5.893
	Option 3	0.337	0.192	0.356	105.688	0.010	1.252
	Option 1	0.000	0.000	0.000		0.000	0.000
April	Option 2	4.798	4.449	2.461	51.288	1.323	10.068
	Option 3	0.904	0.800	0.559	61.839	0.182	2.143
	Option 1	0.000	0.000	0.000		0.000	0.000
May	Option 2	4.658	3.199	4.107	88.174	0.490	15.868
	Option 3	0.879	0.559	0.865	98.309	0.069	3.220
	Option 1	0.000	0.000	0.000		0.000	0.000
June	Option 2	4.305	4.014	2.279	52.928	1.086	9.699
	Option 3	0.810	0.724	0.510	62.951	0.156	2.029
	Option 1	0.000	0.000	0.000		0.000	0.000
July	Option 2	5.909	5.395	2.967	50.216	1.653	12.425
	Option 3	1.114	0.974	0.678	60.891	0.228	2.607
	Option 1	0.000	0.000	0.000		0.000	0.000
August	Option 2	5.647	2.921	5.952	105.402	0.182	18.859
	Option 3	1.057	0.481	1.207	114.177	0.028	4.058
	Option 1	0.000	0.000	0.000		0.000	0.000
September	Option 2	7.206	5.915	4.768	66.169	1.348	18.857
	Option 3	1.361	1.087	1.035	76.018	0.185	3.906
	Option 1	0.000	0.000	0.000		0.000	0.000
October	Option 2	7.210	6.606	3.527	48.916	2.046	14.649
	Option 3	1.357	1.171	0.810	59.739	0.283	3.115
	Option 1	0.000	0.000	0.000			0.000
November	Option 2	0.116	0.085	0.137	118.010	0.000	0.462
	Option 3	0.022	0.014	0.028	127.519	- 0.000	0.098
December	Option 1	0.000	0.000	0.000			0.000

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 2	0.253	0.174	0.256	101.086		0.853
	Option 3	0.048	0.030	0.053	110.849		0.179

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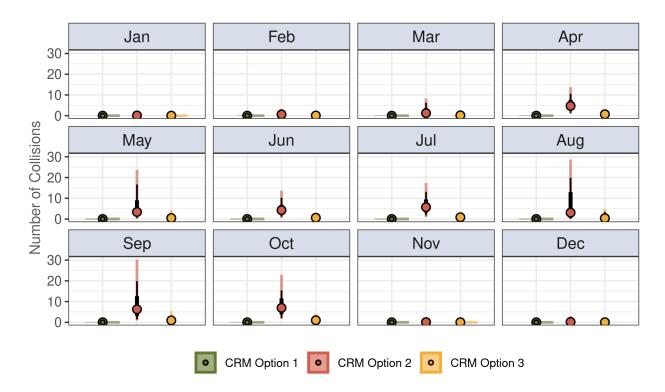
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- Simulation mode: Stochastic
- Number of iterations: 1000
- Wind farm scenarios specified:
 - West of Orkney WCS, containing the following species:
 - Northern Gannet

2.1 NORTHERN GANNET

Figure 1: Collision risk estimates for Northern Gannet at West of Orkney WCS, by Month. Density distribution, median, 66% and 95% quantile intervals and quantile dotplots (each dot represents ~2% chance outcome) of simulated values



Summary statistics of collision estimates for Northern Gannet at West of Orkney WCS, by Month

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 1	0.000	0.000	0.000			0.000
January	Option 2	0.122	0.093	0.132	108.163		0.469
	Option 3	0.019	0.012	0.022	118.957		0.076
	Option 1	0.000	0.000	0.000		0.000	0.000
February	Option 2	0.700	0.604	0.583	83.278	-	2.072
	Option 3	0.106	0.078	0.100	93.972		0.361
March	Option 1	0.000	0.000	0.000			0.000

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 2	1.891	1.206	1.814	95.937	0.075	6.199
	Option 3	0.286	0.161	0.304	106.279	0.008	1.069
	Option 1	0.000	0.000	0.000		0.000	0.000
April	Option 2	5.065	4.709	2.575	50.842	1.414	10.556
	Option 3	0.767	0.678	0.480	62.481	0.151	1.832
	Option 1	0.000	0.000	0.000		0.000	0.000
May	Option 2	4.917	3.385	4.316	87.775	0.526	16.648
	Option 3	0.747	0.474	0.739	98.922	0.057	2.753
	Option 1	0.000	0.000	0.000		0.000	0.000
June	Option 2	4.545	4.240	2.386	52.498	1.157	10.190
	Option 3	0.688	0.611	0.438	63.623	0.129	1.736
	Option 1	0.000	0.000	0.000		0.000	0.000
July	Option 2	6.239	5.696	3.105	49.772	1.776	13.062
	Option 3	0.946	0.830	0.583	61.599	0.190	2.231
	Option 1	0.000	0.000	0.000		0.000	0.000
August	Option 2	5.962	3.070	6.263	105.039	0.193	19.816
	Option 3	0.898	0.399	1.030	114.754	0.023	3.466
	Option 1	0.000	0.000	0.000		0.000	0.000
September	Option 2	7.607	6.273	5.004	65.776	1.445	19.813
	Option 3	1.157	0.919	0.887	76.710	0.151	3.336
	Option 1	0.000	0.000	0.000		0.000	0.000
October	Option 2	7.612	6.976	3.688	48.452	2.196	15.386
	Option 3	1.152	0.988	0.696	60.414	0.235	2.658
	Option 1	0.000	0.000	0.000			0.000
November	Option 2	0.122	0.090	0.144	117.652	0.000	0.484
	Option 3	0.019	0.012	0.024	128.078	0.000	0.083
December	Option 1	0.000	0.000	0.000			0.000

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 2	0.267	0.183	0.269	100.690		0.901
	Option 3	0.040	0.025	0.045	111.574		0.154

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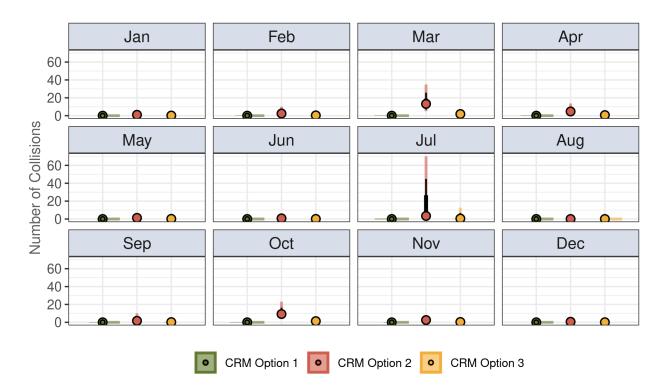
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- Simulation mode: Stochastic
- Number of iterations: 1000
- Wind farm scenarios specified:
 - West of Orkney WCS, containing the following species:
 - Black-legged Kittiwake

2.1 BLACK-LEGGED KITTIWAKE

Figure 1: Collision risk estimates for Black-legged Kittiwake at West of Orkney WCS, by Month. Density distribution, median, 66% and 95% quantile intervals and quantile dotplots (each dot represents ~2% chance outcome) of simulated values



Summary statistics of collision estimates for Black-legged Kittiwake at West of Orkney WCS, by Month

-		-			-	-
CRM Option	Mean	Median	SD	CV	2.5%	97.5%
Option 1	0.000	0.000	0.000		0.000	0.000
Option 2	1.021	0.999	0.391	38.259	0.320	1.903
Option 3	0.146	0.141	0.060	40.851	0.044	0.279
Option 1	0.000	0.000	0.000		0.000	0.000
Option 2	3.149	2.395	2.217	70.408	0.523	8.133
Option 3	0.450	0.333	0.323	71.828	0.072	1.216
Option 1	0.000	0.000	0.000		0.000	0.000
	Option 1 Option 2 Option 3 Option 1 Option 2 Option 3	Option 1 0.000 Option 2 1.021 Option 3 0.146 Option 1 0.000 Option 2 3.149 Option 3 0.450	Option 1 0.000 0.000 Option 2 1.021 0.999 Option 3 0.146 0.141 Option 1 0.000 0.000 Option 2 3.149 2.395 Option 3 0.450 0.333	Option 1 0.000 0.000 0.000 Option 2 1.021 0.999 0.391 Option 3 0.146 0.141 0.060 Option 1 0.000 0.000 0.000 Option 2 3.149 2.395 2.217 Option 3 0.450 0.333 0.323	Option 1 0.000 0.000 0.000 Option 2 1.021 0.999 0.391 38.259 Option 3 0.146 0.141 0.060 40.851 Option 1 0.000 0.000 0.000 70.408 Option 3 0.450 0.333 0.323 71.828	Option 1 0.000 0.000 0.000 0.000 Option 2 1.021 0.999 0.391 38.259 0.320 Option 3 0.146 0.141 0.060 40.851 0.044 Option 1 0.000 0.000 0.000 0.000 0.000 Option 2 3.149 2.395 2.217 70.408 0.523 Option 3 0.450 0.333 0.323 71.828 0.072

Time Period	CRM Option	Mean	Median	SD	cv	2.5%	97.5%
	Option 2	13.972	13.186	5.034	36.025	6.899	25.761
	Option 3	1.995	1.847	0.765	38.326	0.917	3.783
	Option 1	0.000	0.000	0.000		0.000	0.000
April	Option 2	4.855	4.711	2.730	56.229	0.979	10.166
	Option 3	0.693	0.636	0.404	58.253	0.129	1.532
	Option 1	Dption 1 0.000 0.000 0.000		0.000			
May	Option 2	1.351	1.270	0.923	68.316		3.149
	Option 3	0.193	0.181	0.135	70.210	0.000 0.979 0.129 0.129 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	0.470
	Option 1	0.000	0.000	0.000		0.000	0.000
June	Option 2	0.745	0.701	0.408	54.715	•	1.634
	Option 3	0.107	0.099	0.060	56.622	. 1.077 5 0.146	0.246
	Option 1	0.000	0.000	0.000			0.000
July	Option 2	12.161	3.399	13.547	111.401	1.077	44.894
	Option 3	1.741	0.492	1.968	113.046	0.146	6.682
	Option 1	0.000		0.000			0.000
August	Option 2	0.115	0.000	0.185	160.437		0.602
	Option 3	0.016	0.000	0.027	161.955		0.083
	Option 1	0.000		0.000		5 0 0.000 5 2 1.077 5 0.146 7 5 0.000 4 0.000 9 4 1.077 5 0.146 1.077 5 0.146 1.077 5 0.146 1.077 5 0.000 1.077 5 0.146 1.077 5 0.000 1.077 5 0.146 1.077 5 0.000 1.077 5 0.146 1.077 5 0.000 1.077 5 0.146 1.077 5 0.000 1.077 5 0.146 1.077 5 0.000 1.077 5 0.146 1.077 5 0.000 1.077 5 0.146 1.077 5 0.000 1.077 5 0.146 1.077 5 0.000 0.000 1.077 5 0.146 0.0000 0.000 0.00000 0.00000 0.00000 0.00000 0.0000 0.0000000 0.000000 0.00000000	0.000
September	Option 2	2.096	1.682	2.152	102.649		6.698
	Option 3	0.300	0.231	0.313	104.424		0.989
	Option 1	0.000	0.000	0.000			0.000
October	Option 2	9.821	9.247	3.194	32.520	4.691	16.414
	Option 3	1.404	1.315	0.498	35.447	0.637	2.510
	Option 1	0.000	0.000	0.000		0.000	0.000
November	Option 2	2.780	2.548	1.317	47.387	0.827	5.684
	Option 3	0.398	0.360	0.197	49.599	1.077 0.146 0.000 4.691 0.637 0.000	0.868
	option 5						

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 2	0.636	0.612	0.306	48.116	0.145	1.318
	Option 3	0.091	0.086	0.046	50.303	0.020	0.192

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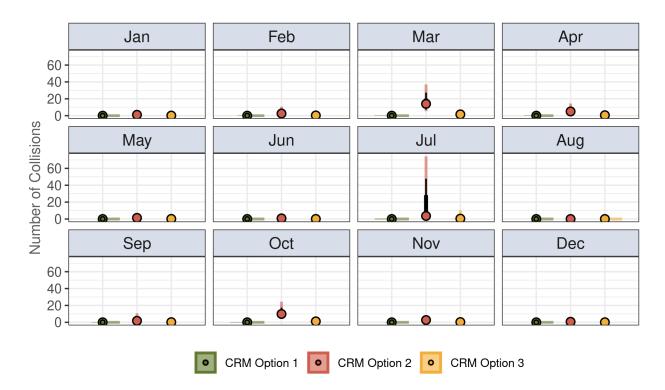
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- Simulation mode: Stochastic
- Number of iterations: 1000
- Wind farm scenarios specified:
 - West of Orkney WCS, containing the following species:
 - Black-legged Kittiwake

2.1 BLACK-LEGGED KITTIWAKE

Figure 1: Collision risk estimates for Black-legged Kittiwake at West of Orkney WCS, by Month. Density distribution, median, 66% and 95% quantile intervals and quantile dotplots (each dot represents ~2% chance outcome) of simulated values



Summary statistics of collision estimates for Black-legged Kittiwake at West of Orkney WCS, by Month

CRM Option	Mean	Median	SD	CV	2.5%	97.5%
Option 1	0.000	0.000	0.000		0.000	0.000
Option 2	1.085	1.061	0.415	38.194	0.340	2.021
Option 3	0.123	0.119	0.050	40.934	0.037	0.235
Option 1	0.000	0.000	0.000		0.000	0.000
Option 2	3.348	2.549	2.356	70.366	0.558	8.623
Option 3	0.379	0.280	0.272	71.903	0.061	1.023
Option 1	0.000	0.000	0.000		0.000	0.000
	Option 1 Option 2 Option 3 Option 1 Option 2 Option 3	Option 1 0.000 Option 2 1.085 Option 3 0.123 Option 1 0.000 Option 2 3.348 Option 3 0.379	Option 1 0.000 0.000 Option 2 1.085 1.061 Option 3 0.123 0.119 Option 1 0.000 0.000 Option 2 3.348 2.549 Option 3 0.379 0.280	Option 1 0.000 0.000 0.000 Option 2 1.085 1.061 0.415 Option 3 0.123 0.119 0.050 Option 1 0.000 0.000 0.000 Option 2 3.348 2.549 2.356 Option 3 0.379 0.280 0.272	Option 1 0.000 0.000 0.000 Option 2 1.085 1.061 0.415 38.194 Option 3 0.123 0.119 0.050 40.934 Option 1 0.000 0.000 0.000 1000 Option 2 3.348 2.549 2.356 70.366 Option 3 0.379 0.280 0.272 71.903	Option 1 0.000 0.000 0.000 0.000 Option 2 1.085 1.061 0.415 38.194 0.340 Option 3 0.123 0.119 0.050 40.934 0.037 Option 1 0.000 0.000 0.000 0.000 0.000 Option 2 3.348 2.549 2.356 70.366 0.558 Option 3 0.379 0.280 0.272 71.903 0.061

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 2	14.854	14.032	5.342	35.961	7.331	27.346
	Option 3	1.680	1.556	0.646	38.429	0.766	3.200
	Option 1	0.000	0.000	0.000		0.000	0.000
April	Option 2	5.161	5.003	2.900	56.186	1.044	10.798
	Option 3	0.584	0.535	0.340	58.315	0.108	1.296
	Option 1	0.000	0.000	0.000			0.000
May	Option 2	1.436	1.349	0.980	68.258		3.346
	Option 3	0.162	0.153	0.114	70.307	0.000 1.044 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.108 0.000 0.000 0.123 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	0.398
	Option 1	0.000	0.000	0.000		0.000	0.000
June	Option 2	0.792	0.746	0.433	54.666	-	1.736
	Option 3	0.090	0.083	0.051	56.701	2 1.147	0.208
	Option 1	0.000	0.000	0.000			0.000
July	Option 2	12.927	3.612	14.396	111.362	1.147	47.709
	Option 3	1.466	0.415	1.658	113.066	0.123	5.638
	Option 1	0.000		0.000			0.000
August	Option 2	0.122	0.000	0.196	160.397		0.642
	Option 3	0.014	0.000	0.022	162.047		0.070
	Option 1	0.000		0.000		5 0.108 3 0.000 5 0.000 5 0.000 5 0.123 7 0.000 7 0.000 7 0.000 1 4.998 5 0.534	0.000
September	Option 2	2.228	1.791	2.286	102.600	-	7.106
	Option 3	0.253	0.195	0.264	104.520		0.833
	Option 1	0.000	0.000	0.000			0.000
October	Option 2	10.440	9.865	3.387	32.441	4.998	17.435
	Option 3	1.182	1.107	0.420	35.555	0.766 0.000 1.044 0.108 0.1000 1.147 0.123 0.123 0.0000 4.998 0.534 0.000 0.3833 0.094	2.116
	Option 1	0.000	0.000	0.000		0.000	0.000
November	Option 2	2.955	2.708	1.399	47.326	0.883	6.030
	Option 3	0.335	0.302	0.166	49.689	1.147 0.123 0.000 0.000 4.998 0.534 0.000 0.883	0.734

Time Period	CRM Option	Mean	Median	SD	CV	2.5%	97.5%
	Option 2	0.676	0.651	0.325	48.058	0.155	1.401
	Option 3	0.077	0.072	0.039	50.383	0.017	0.163

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