



codling
wind park



EIAR Addendum

Appendix 10-L Great Black-
backed Gull Population
Viability Analysis Parameter
Log



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Abbreviations

Abbreviation	Term in Full
ABP	An Bord Pleanála
CWP	Codling Wind Park
PVA	Population Viability Analysis

1 Introduction

1. Codling Wind Park Limited (CWPL) is proposing to develop the Codling Wind Park (CWP) Project, which is located in the Irish sea approximately 13 - 22 km off the east coast of Ireland, at County Wicklow.
2. On Friday 6th September 2024 CWPL (referred to hereafter as the 'Applicant') applied for planning permission to An Coimisiún Pleanála (ACP) (referred to hereafter as the 'Commission') under Section 291 of the Planning and Development Act (PDA) 2000, as amended, for the construction, operation and decommissioning of the CWP Project.
3. On 1st August 2025, having reviewed the application documentation, including the Environmental Impact Assessment Report (EIAR) and the Natura Impact Statement (NIS), the Commission issued a Further Information Request (FIR) in relation to the CWP Project.
4. This appendix forms part of the Applicant's response to Item 7r of the Commission's FIR (see **FIR Response Document**) and supports **Section 10** of the **EIAR Addendum**. Specifically, this appendix provides the population viability analysis (PVA) parameter log for great black-backed gull.
5. Item 7r of the Commission's FIR states that:

"The Commission notes that the population-level effects have been investigated through Population Viability Analysis (PVA) where project-related impacts result in a >1% increase in baseline mortalities. For the NIS, this has been compared against the relevant season population, however, for the EIAR, only the annual population is considered".

*Table 10-119 in Chapter 10 Ornithology of the EIAR presents the CRM results for Great Black-backed Gull *Larus marinus* and compares the estimated mortalities with the reference populations. When compared against the breeding population calculated via Method 2 (item 7(g) above refers), the increase in baseline mortality is 1.886%, which exceeds the 1% threshold for PVA.*

The Commission therefore requests the applicant to review estimated mortalities and increases in baseline mortality for all species, and to run PVAs to assess population-level effects where project-related impacts represent a >1% increase in baseline mortalities in any single season, annually, or SPA population. The EIAR and, where relevant, the NIS must be updated accordingly."

2 Population Viability Analysis Parameter log

6. The following sections present the PVA parameter log for great black-backed gull. The parameter log is a record of each of the input values used in the PVA model and includes receptor-specific survival and productivity rates, age at first breeding, population age structure and other model-specific parameters. The parameter log is used to document exactly which parameters were included in the model, as well as ensure transparency and repeatability.

2.1 Set Up

7. The log file was created on: 2025-12-10 21:28:21 using Tool version 2, with R version 4.2.2, PVA package version: 4.18 (with UI version 1.7).

##	Package	Version
## popbio	"popbio"	"2.8"
## shiny	"shiny"	"1.8.0"
## shinyjs	"shinyjs"	"2.1.0"
## shinydashboard	"shinydashboard"	"0.7.3"
## shinyWidgets	"shinyWidgets"	"0.8.2"
## DT	"DT"	"0.33"
## plotly	"plotly"	"4.10.4"
## rmarkdown	"rmarkdown"	"2.25"
## dplyr	"dplyr"	"1.1.4"
## tidyr	"tidyr"	"1.3.1"

2.2 Basic information

This run had reference name "".

PVA model run type: simplescenarios.

Model to use for environmental stochasticity: betagamma.

Model for density dependence: nodd.

Include demographic stochasticity in model?: Yes.

Number of simulations: 5000.

Random seed: 2744.

Years for burn-in: 0.

Case study selected: None.

2.3 Baseline demographic rates

Species chosen to set initial values: Great Black-Backed Gull.

Region type to use for breeding success data: Reg.Seas.

Available colony-specific survival rate: National. Sector to use within breeding success region: Irish Sea.

Age at first breeding: 5.

Is there an upper constraint on productivity in the model?: Yes, constrained to 3 per pair.

Number of subpopulations: 1.

Are demographic rates applied separately to each subpopulation?: No.

Units for initial population size: all.individuals

Are baseline demographic rates specified separately for immatures?: Yes.

2.3.1 Population 1

Initial population values: Initial population 2041 in 2023

Productivity rate per pair: mean: 1.011012 , sd: 0.4724585

Adult survival rate: mean: 0.93 , sd: 0.001

Immatures survival rates:

Age class 0 to 1 - mean: 0.93 , sd: 0.001 , DD: NA

Age class 1 to 2 - mean: 0.93 , sd: 0.001 , DD: NA

Age class 2 to 3 - mean: 0.93 , sd: 0.001 , DD: NA

Age class 3 to 4 - mean: 0.93 , sd: 0.001 , DD: NA

Age class 4 to 5 - mean: 0.93 , sd: 0.001 , DD: NA

2.4 Impacts

Number of impact scenarios: 1.

Are impacts applied separately to each subpopulation?: No

Are impacts of scenarios specified separately for immatures?: No

Are standard errors of impacts available?: No

Should random seeds be matched for impact scenarios?: No

Are impacts specified as a relative value or absolute harvest?: relative

Years in which impacts are assumed to begin and end: 2028 to 2053

2.4.1 Impact on Demographic Rates

Scenario A - Name:

All subpopulations

Impact on productivity rate mean: 0 , se: NA

Impact on adult survival rate mean: 0.0017927 , se: NA

2.4.2 Output

First year to include in outputs: 2023

Final year to include in outputs: 2053

How should outputs be produced, in terms of ages?: breeding.pairs

Target population size to use in calculating impact metrics: NA

Quasi-extinction threshold to use in calculating impact metrics: NA