

DR SOPHIE LOCA

Spatial ecologist for conservation

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Areas of expertise

Conservation ecology

Data collation and management

Spatial data science

Scientific and technical communication

Threatened and data-poor species research

Core skills

Advanced Bayesian spatial distribution modelling in R

GIS mapping, processing and analysis tools

Statistical programming languages R and Python

Collation, exploration and statistical analysis of spatial data

Preparation of scientific publications and grey literature to inform policy and management

Project management and communication

Softwares

R Studio

Py Charm

Visual Studio Code

GitHub

Amazon Web Services (AWS)

ArcGIS Pro

Quantum GIS

Jira

Adobe Illustrator

Languages

English (native)

French CEFR level B1



Professional Experience

Conservation Researcher and GIS Specialist - Fjordstrong

- Lead cloud data-solutions and data-migration
- Advanced GIS analysis to inform environmental planning and decision-making.
- Contributed to the writing of scientific reports and policy papers for clients and the general public.
- Creation of visual communication media (mapping, infographics) to enhance scientific results.

Software Development Project Manager - Data Intellect

- Management of software development projects from planning to delivery, applying agile methodologies (Scrum) to ensure project success.
- Analysis of business needs of customers and translation into technical requirements for development teams.
- Leadership and team management, task coordination and progress tracking through project management tools such as Jira and Teams.
- Implementation of effective internal and external communication processes.
- Managing project timeline and budget while ensuring quality of deliverables.

Software Development Consultant - Data Intellect

- Producing detailed technical documentation to facilitate knowledge sharing
- Complex data analysis and management of production environments
- Collaborative work within a technical team in a demanding environment.
- Exploration of emerging AI tools and development of Python applications

Research Assistant - Queen's University Belfast

- Conducting surveys to identify critical fish habitats (EFH) in a protected area, with BRUV surveys and towed camera transects.
- Analysis of video data and writing reports for the client, including recommendations for area management.
- Demographic assessment of species and identification of critical areas for their conservation.
- Project reporting and lead manuscript preparation



Education

PhD in Quantitive Marine Conservation

Queen's University Belfast

Project: Conservation and management of the Critically Endangered flapper skate (*Dipturus intermedius*)

- Applied advanced statistical techniques and qualitative approaches to address key knowledge gaps for the species and to support conservation planning.
- Processing and analysis of fisheries data in R Studio
- Designed and led stakeholder consultations and expert workshops
- Led manuscript preparation

BSc Honours in Zoology

Queen's University Belfast

Project : The spatial ecology of domestic cats (*Felis catus*) in response to urbanisation, and conservation implications for wildlife.

- Designed and implemented a 5 month biotelemetry study (accelerometers and GPS)
- Constructed statistical models to analyse space use and behaviours
- Lead manuscript preparation

A Levels (equivalent to Baccalauréat - Scientifique)

St Louis Grammar School, Ballymena

Biologie, chimie, mathématiques et français.



Relevant courses

Certified Solutions Architect - Associate, AWS

Skills: Design of scalable architectures, secure and resilient and affordable cloud solutions.

Regression models with spatial correlation using R-INLA, Highland statistics

Skills: Bayesian statistics, spatial and temporal modelling, time series analyses.

Python for Data Science, IBM

Skills: Reading and writing of files, objects and classes, loops, Numpy Arrays, simple API.



Academic accomplishments

Mar 2023	Invited key speaker at the 2nd Regional Flapper Skate Working Group
Apr 2022	Department of Agricultural and Rural Development of Northern Ireland, Environmental challenge fund – funding obtained to carry out a 6-month postdoctoral research project.
Nov 2022	Presented research at Sharks International conference, Valencia, ES.
Mar 2021	Presented research at the European Elasmobranch Association conference, Leiden, NE.
Mar 2020	Awarded best presentation at the PhD symposium at Queen's University Belfast.
Jul 2019	Department of Agriculture and Rural Development of Northern Ireland PhD Studentship Award – funding obtained to carry out a 3-year PhD.
Jun 2017	Queen's University Belfast John Muir studentship award – Small bursary awarded to support extension of undergraduate research.



Publications

A conceptual framework for regional data collection to support the conservation of large batoids: a case study on the critically endangered flapper skate. **2025**. Conservation Science and Practice. <https://doi.org/10.1111/csp2.70052>

Seasonal habitat selection and ranging of domestic cats (*Felis catus*) in rural and urban environments. **2024**. Animal Biotelemetry, 12(1), p.13. <https://animalbiotelemetry.biomedcentral.com/articles/10.1186/s40317-024-00367-0#Sec2>

A holistic and comprehensive data approach validates the distribution of the critically endangered flapper skate (*Dipturus intermedius*). **2023**. Journal of Fish Biology, 103(3), pp.516–528. <https://onlinelibrary.wiley.com/doi/10.1111/jfb.15466>

Spatio-temporal dynamics of the common skate species complex: Evidence of increasing abundance. **2022**. Diversity and Distributions, 28(11), pp.2403–2415. <https://onlinelibrary.wiley.com/doi/full/10.1111/ddi.13635>

The critically endangered flapper skate (*Dipturus intermedius*): Recommendations from the first flapper skate working group meeting. **2021**. Marine Policy, 124, p.104367. <https://www.sciencedirect.com/science/article/pii/S0308597X20310186>

Evidence of egg-laying grounds for critically endangered flapper skate (*Dipturus intermedius*) off Orkney, UK. **2021**. Journal of Fish Biology, 99(4), pp.1492–1496. <https://onlinelibrary.wiley.com/doi/full/10.1111/jfb.14817>

Revising baseline distribution information for the Critically Endangered flapper skate (*Dipturus intermedius*). ([En révision, Ecology and Evolution](#))

Validating predicted juvenile distribution of the Critically Endangered flapper skate (*Dipturus intermedius*) using genetic sampling. ([En révision, Diversity and Distributions](#))

Applying the Ecosystem Principles Approach to support MPA planning for the Critically Endangered flapper skate (*Dipturus intermedius*). ([En révision, Journal of Fish Biology](#))

Geometric morphometric criteria validated by molecular barcoding for differentiating juveniles species in the common skate complex (*Dipturus intermedius* & *Dipturus batis*). ([En rédaction](#))

Demographic and welfare factors influencing outdoor movements in domestic cats (*Felis catus*). ([En rédaction](#))

Grey Literature

Loca, S.L, Garbett, A., and Collins., P.C. **2023**. THE MAIDENS SAC FLAPPER SKATE ASSESSMENT REPORT. The Department of Agriculture, Environment and Rural Affairs, Northern Ireland.

Thorburn, J., Garbett, A., Loca, S., Bradley, C., Gallagher, R., Prodohl, P., Houghton, J. & Collins, P. **2023**. Flapper skate management recommendations.

Gabbett, A., Thorburn, J., Loca, S., Bradley, C., Prodohl, P., Houghton, J. & Collins, P. **2023**. SeaMonitor Final Reporting, Spatial use models for flapper skate (*Dipturus intermedius*) & basking sharks (*Cetorhinus maximus*). With management recommendations for flapper skate (*Dipturus intermedius*).

Loca, S.L, Thorburn, J., and Collins., P.C. 2021. ARK Nature: FLAPPER SKATE ASSESSMENT REPORT 2021.



Professional references

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