

**From:** Mathieu Basille  
**Subject:** Postdoc: Quantitative Movement Ecology on Seabird navigation, University of Florida, Fort Lauderdale, FL

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We are seeking a postdoctoral researcher highly trained in quantitative movement ecology (statistical and mechanistic models) to fulfill a position of Postdoctoral Associate at the University of Florida's Fort Lauderdale Research and Education Center in Davie, FL. The candidate will work in a large international project funded by the Human Frontier Science Program, investigating the use of infrasound by seabird. The candidate will be in charge of developing a comprehensive movement ecology framework to investigate movement of seabirds in relationship to the infrasoundscape on the open sea using a hierarchy of environmental cues at multiple nested scales. Lead PI is Dr. Samantha Patrick, from the Seabird Ecology Group (University of Liverpool, UK); co-PIs are Dr. Susana Clusella-Trullas (Stellenbosch University, South Africa), Dr. Jelle Assink (Royal Netherlands Meteorological Institute, the Netherlands) and Dr. Mathieu Basille (University of Florida, USA). See below for the general project summary. The candidate will be located at the University of Florida's Fort Lauderdale Research and Education Center in Davie, FL, under the supervision of Dr. Basille. The project covers 3 years of postdoctoral research in each institution, and all postdoctoral researchers will tightly work together, including several extended stays at collaborators' institutions.

The postdoctoral researcher will be primarily in charge of developing statistical and mechanistic models to investigate movement of seabirds in relationship to the infrasoundscape. The postdoctoral researcher will also be largely involved in hiring and supervising a Master's student for this project, as well as training lab members (including graduate students) in state-of-the-art techniques in movement ecology.

**Preferred Qualifications:** A PhD is required as well as strong mathematical and programming skills. Advanced knowledge of R and SQL (PostGIS) is expected. Experience in Movement Ecology is highly desirable. Strong publication record in peer-reviewed journals in Quantitative Ecology or Biostatistics is highly desirable. Previous experience with Linux systems preferred.

To apply: Please follow the instructions at UF Career

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**General project summary:**

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Seabirds have the longest migrations on earth and can travel 8 million km in a lifetime, yet how they navigate across a seemingly featureless ocean is still one of the greatest puzzles in nature. Evidence from mammalian and insect systems shows that animals adjust their behavior in response to infrasound and a handful of studies have suggested pigeons may use infrasound for navigation. These low frequency sound waves can propagate over hundreds of kilometers, creating "hills" and "valleys" of an infrasoundscape that birds may use to navigate, like a topological map. When combined with meteorological and oceanographic models, these maps can be modeled to create real time soundscapes that individual seabirds could use in movement decisions over spatial scales. By combining a network of 60 international atmospheric infrasound and hydro-acoustic monitoring stations that detect signals from around the globe with a database of over 15,000 seabird movement tracks, we will have a unique opportunity to explore the role of atmospheric and oceanic infrasound in navigation, respectively for aerial and aquatic species. The mechanisms allowing animals to detect low frequency sound has been identified in other taxa, and our study will examine how seabird sensory organs may capture infrasound. The development of an innovative movement framework grounded in landscape ecology will allow us to assess determinants of large-scale movement, notably the effect of infrasound in directing migration and commuting trips in the open ocean. Furthermore, novel biologging devices, which can detect sound and meteorological parameters, will be used to simultaneously capture movement, infrasound and weather conditions to examine individual movement decisions at fine scale. Finally, interspecific comparisons will assess the relative importance of infrasound for seabird navigation, with respect to phenotypical and phylogenetic differences, thus offering a complete assessment of the physiology, behavior and physics underpinning the use of infrasound in navigation.  
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« Le tout est de tout dire, et je manque de mots  
Et je manque de temps, et je manque d'audace. »  
— Paul Éluard

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