

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/383466678>

High-resolution tracking of fledged Yelkouan Shearwaters *Puffinus yelkouan* exposes post-fledging migration

Poster · September 2024

CITATIONS

0

READS

278

4 authors:



Marie Claire Gatt
University of Milan

20 PUBLICATIONS 128 CITATIONS

SEE PROFILE



Benjamin J Metzger
BirdLife Malta

25 PUBLICATIONS 255 CITATIONS

SEE PROFILE



Martin Austad
Birdlife Malta

14 PUBLICATIONS 94 CITATIONS

SEE PROFILE



Loriane Mendez
Mediterranean Science Commission

27 PUBLICATIONS 164 CITATIONS

SEE PROFILE

High-resolution tracking of fledged Yelkouan Shearwaters exposes post-fledging migration



Marie Claire Gatt^{1*}, Benjamin J. Metzger¹, Martin Austad^{2,3}, Loriane Mendez⁴



The first year of life of Procellariiformes is an understudied period during which juveniles fledge independently and carry out their first outward migration. We present post-fledging and migratory tracks of Yelkouan Shearwaters *Puffinus yelkouan* from Malta, Central Mediterranean.

Methods



OrniTrack-9 GPS-GSM devices on 5 adults & 15 juveniles



Migrations of 3 adults & 14 juveniles



Individuals molecularly sexed.



EMbC classification of GPS positions into (a) **floating**, (b) **extensive search**, (c) **intensive search**, or (d) **relocation** based on velocity and turning angle (Garriga et al. 2016).



Fig. 1 Juvenile Yelkouan Shearwater fitted with a GPS-GSM device.

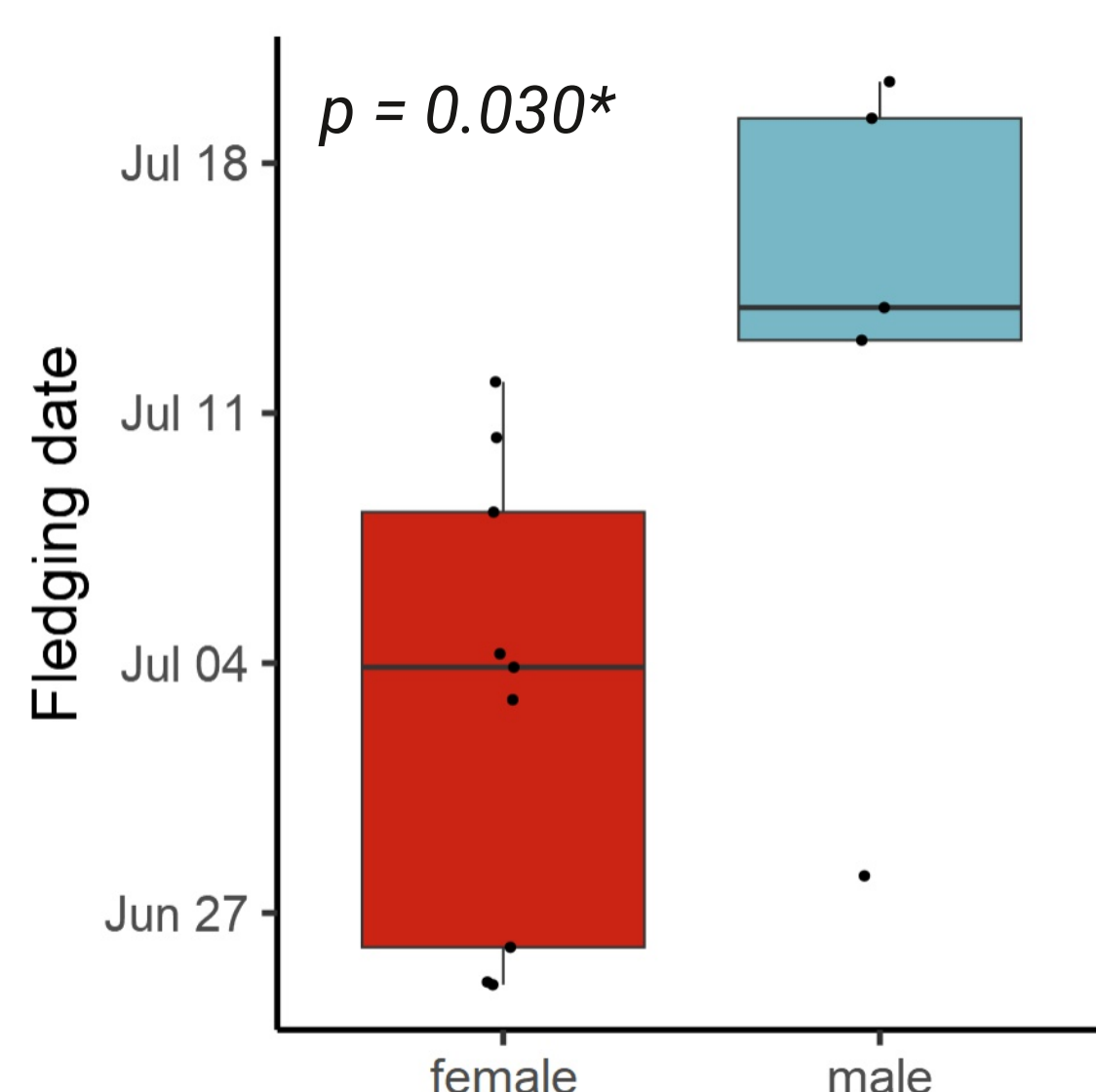


Fig. 2 Fledging dates of female (n = 9) and male (n = 5) Yelkouan Shearwaters.

Female juveniles fledged 10 ± 4 days earlier than males (Fig. 2). One juvenile failed to fledge and another washed up dead in Egypt 16 days after fledging. Transmission durations were similar between juveniles (4 - 41 days) and adults (4 - 44 days).

On fledging, juveniles spent most of their time floating on the water before starting their migrations (Fig 3). Their post-fledging spatial distribution reflects known non-breeding destinations of adult Yelkouan Shearwaters (Raine et al. 2013).

Movement trajectories of Yelkouan Shearwaters travelling into the Aegean demonstrate the difference between **navigation** - adults take a directed route to the Strait of Kythira - and **orientation** - juveniles met the Greek coast then moved south along it to enter the Aegean (Fig. 4).

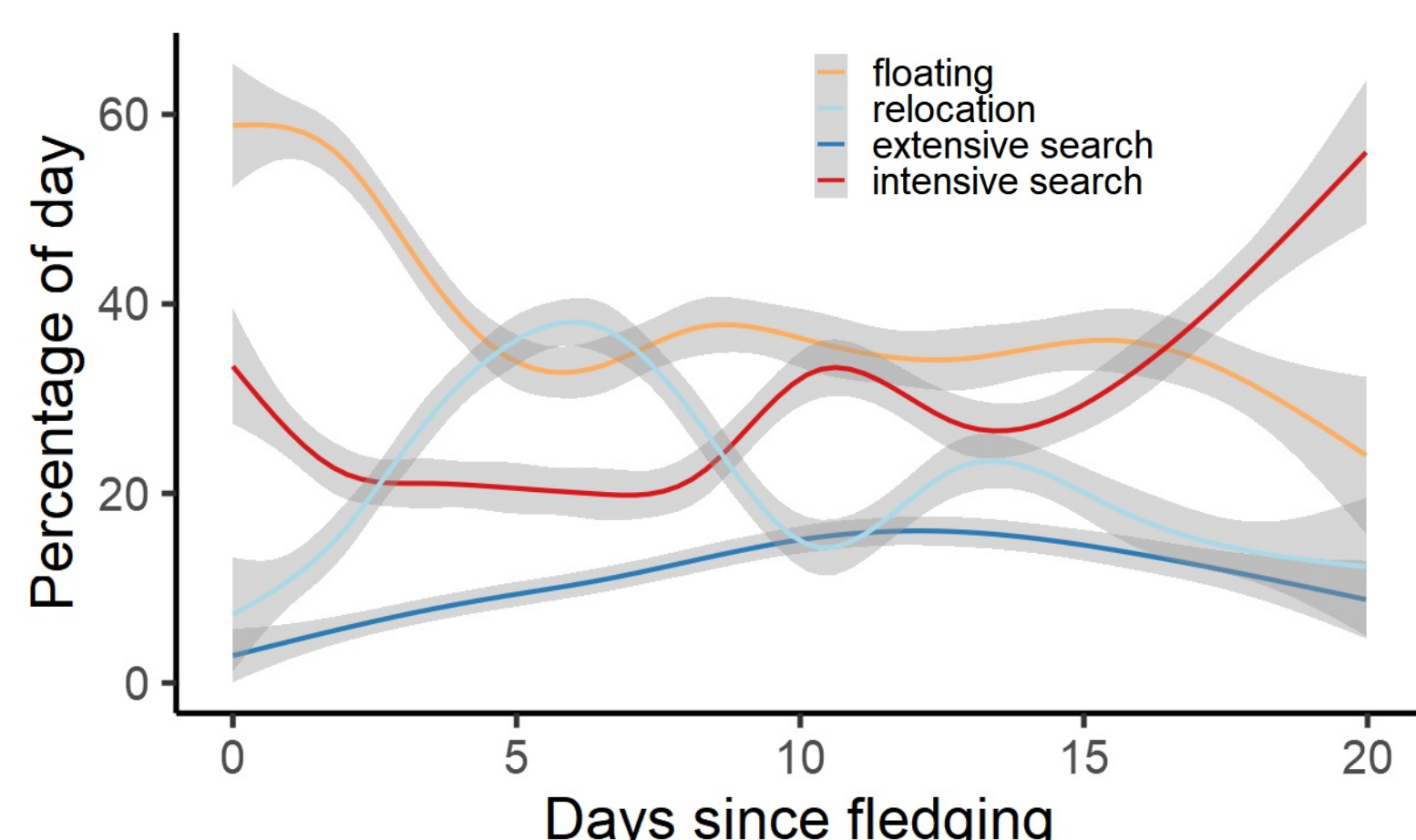


Fig. 3 The proportion of each day juveniles spent in each of four behaviours (EMbC output) after fledging.

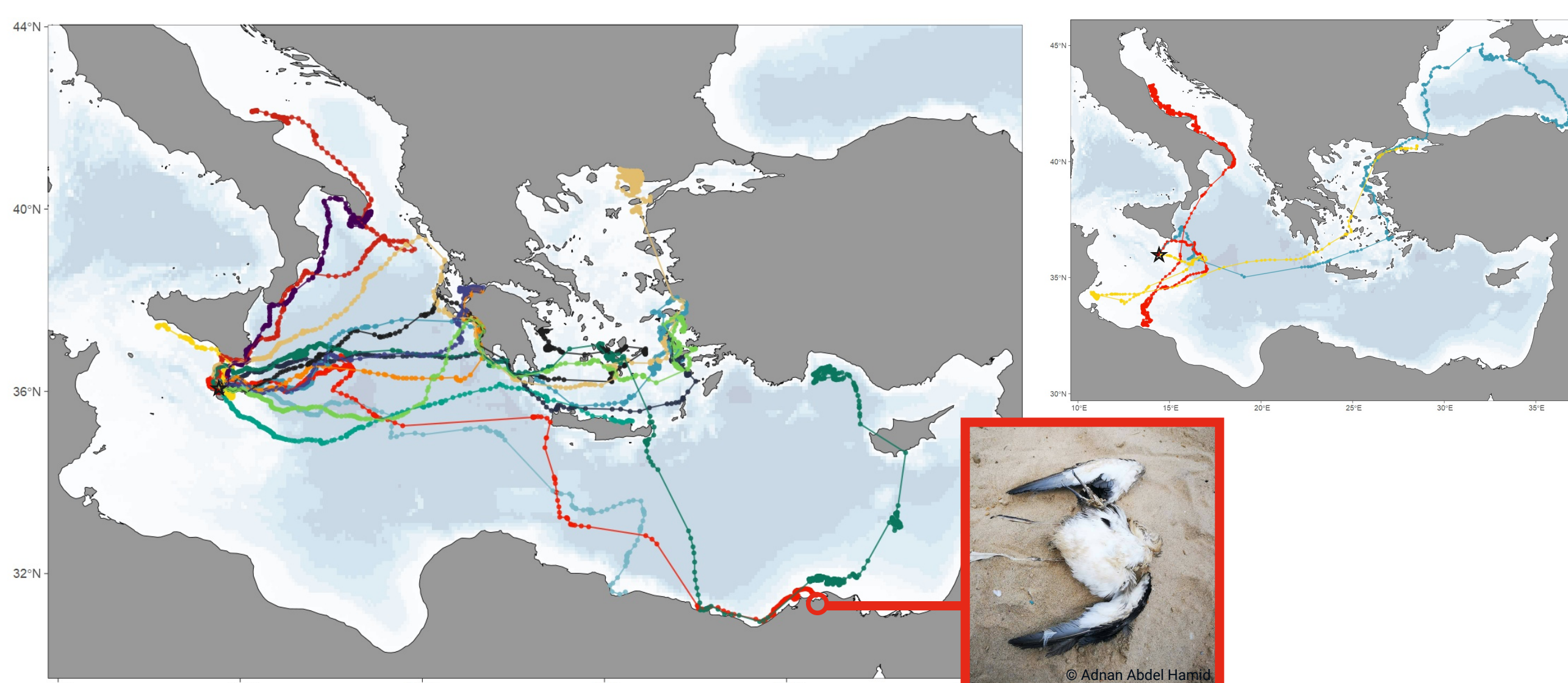


Fig. 4 Left Post-fledging movements of 14 juvenile Yelkouan Shearwaters (4 - 41 days). **Right** Migrations of three adult Yelkouan Shearwaters. Black stars represent colony location, Malta. **Inset** Juvenile washed up dead on the coast of Egypt.

References

- Garriga J., Palmer J.R., Oltra A., Bartumeus F. (2016) Expectation-maximization binary clustering for behavioural annotation. *PLoS ONE* 11: e0151984.
Raine, A.F., Borg, J.J., Raine, H., Phillips, R.A. (2013) Migration strategies of the Yelkouan Shearwater *Puffinus yelkouan*. *Journal of Ornithology* 154: 411–422.

¹ Independent Researcher, 26/1 Triq l-Immakulata Kuncizzjoni, Gzira, Malta

² BirdLife Malta, 57/28 Triq Abate Rigord, Ta' Xbiex XBX 1120, Malta

³ Justus-Liebig University Giessen, Heinrich-Buf-Ring 38, 35392 Giessen, Germany

⁴ Mediterranean Science Commission (CIESM), Monaco

* mcgatt57@gmail.com