

PRELIMINARY DATA ON COASTAL COUNTS FOR SEABIRDS AT LESVOS ISLAND (AEGEAN SEA, NE GREECE)

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Introduction

The Northern Aegean is known to host a variety of species and large numbers of seabirds, which use this region for breeding, foraging as well as migration. However, the existing knowledge of seabird distribution at sea is still insufficiently known. Western Lesvos has been recognized as a seabird bottleneck, which is primarily used by Cory's shearwaters (*Calonectris diomedea*) and Yelkouan shearwaters (*Puffinus yelkouan*) for daily movements as well as migration. Therefore, systematic coastal counts from the SW coast for Lesvos were carried out during summer 2009 to assess migration of Yelkouan shearwaters towards their wintering areas in the Black Sea as well as local movement of Cory's shearwaters during peak of their breeding season.

Methods

A special seabird coastal count protocol was designed, incorporating a standard point count method as well as European Seabirds at Sea (ESAS) method [1] to ensure compatibility with other seabird recording methods. A series of coastal counts were implemented from mid-July to beginning of August from a single observation point on the SW coast of Lesvos (Map 1). The observations were carried out by 1-2 observers who recorded the time number and species of seabirds observed, as well as their behaviour and flight directions with the use of a telescope and binoculars [2]. A total of 6 coastal count sessions were made with a total duration of at least 6 hours (3h in the morning and 3h in the afternoon). Every observation hour was split into 45 minutes of recording, followed by 15 minute break.



Map 1. Location of coastal counts on Lesvos Island and main flight directions of seabird movements



Figures 1, 2 & 3. Coastal counts on Lesvos Island (photos: A. Christidis)

Results & Discussion

During 6 recording days a total of 13,178 seabirds were recorded, out of which 10,431 were Yelkouan shearwaters, 2,577 Cory's shearwaters, 92 Mediterranean shags (*Phalacrocorax aristotelis*) and 78 Yellow-legged gulls (*Larus michahellis*) (Figure 4). Further analysis of the records was based on Yelkouan and Cory's shearwaters which were the most abundant seabird species.

Yelkouan and Cory's shearwaters followed a distinct movement pattern characterized by two main directions, the NW and SE direction. The 99% and 97.5% of Yelkouan and Cory's shearwaters movements respectively had a NW direction whereas very small proportion (less than 1% for both species) exhibited a SE movement (Figures 6 & 7). Additionally, the two species of shearwaters exhibited different patterns of flight movements at different time periods within a single day. The number of Yelkouan shearwaters didn't show significant variations regarding the time of observations. On the other hand Cory's shearwaters were more active during the dawn (Figure 5). Considering the ecology of the two shearwater species it can be concluded that:

- The marine area SW of Lesvos Island constitutes part of Yelkouan shearwater migration route towards their non-breeding and wintering areas in the Northern Aegean and the Black Sea. Therefore during summer it is an one-way route for this species.

- Cory's shearwaters, on the other hand, use the Northern Aegean as a foraging area during the early stages of chick-rearing period (mid July to mid August) in order to acquire adequate food provisions for their chicks. The peak of activity coincides with dawn since the adult individuals leave their colonies at night to reach foraging areas during early morning hours. Furthermore, the fact that a small number of adults followed the SE direction, regardlessly of the time of the day, indicates that Cory's shearwaters on their return to their colonies pass by SW Lesvos after the sunset or they follow an entirely different route of return.

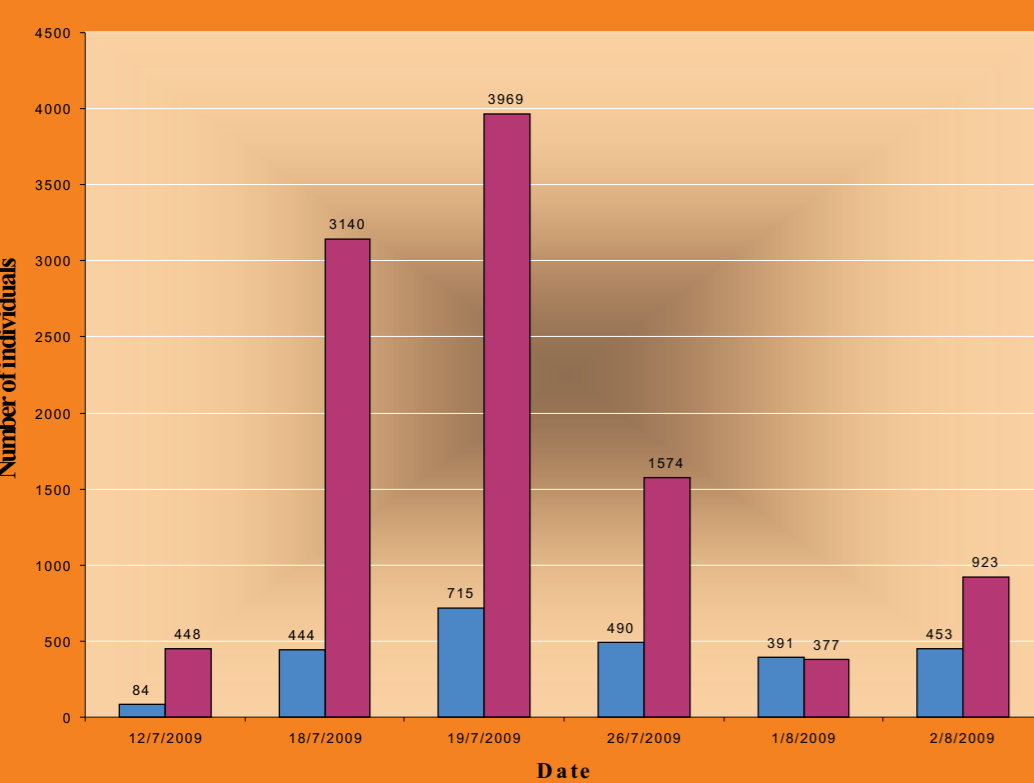


Figure 4. Number of individuals of seabird species per date

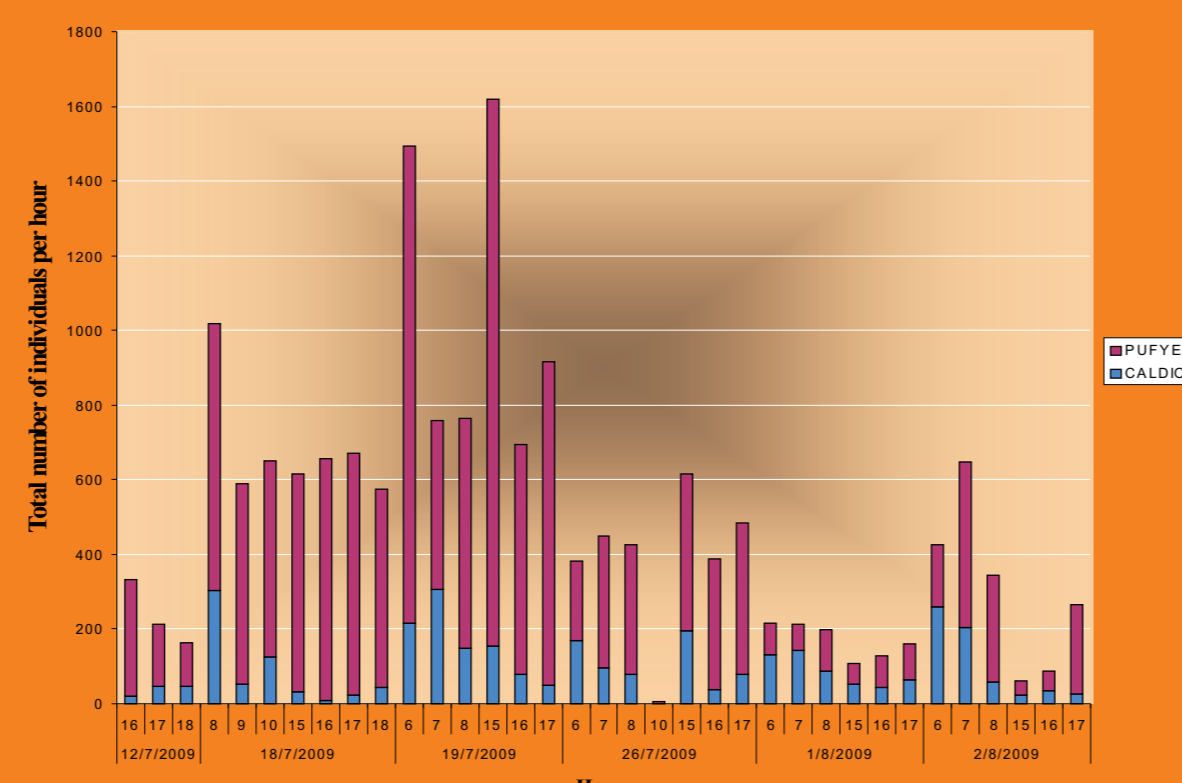


Figure 5. Number of individuals of seabird species per observation hour

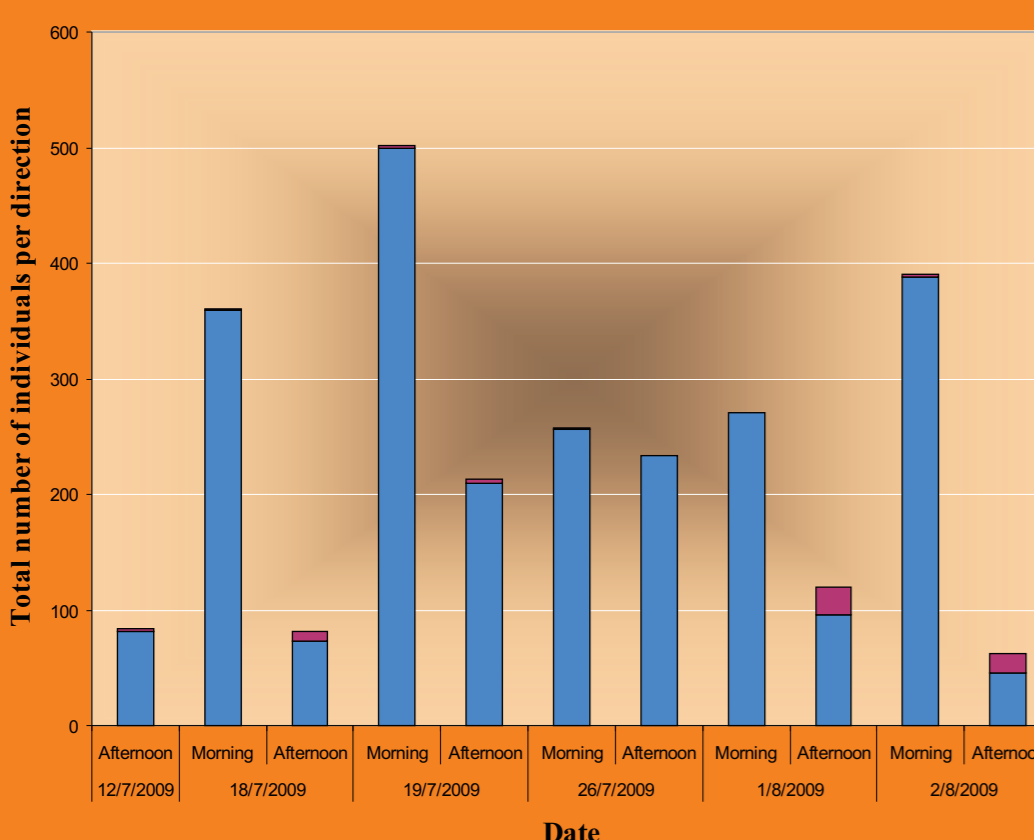


Figure 6. Total number of individuals of Cory's shearwaters per date and time

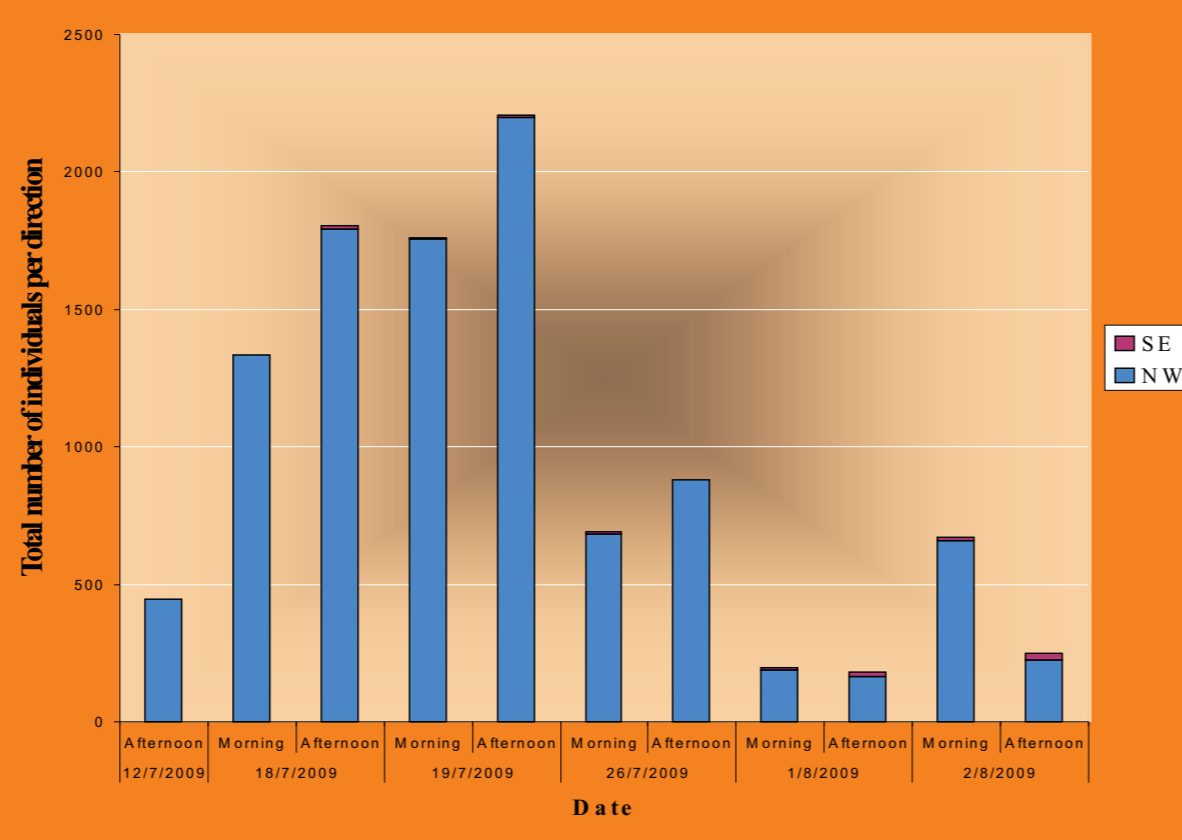


Figure 7. Number of individuals of Yelkouan shearwaters per date and time

Further project aims

Expansion of the assessment of seabird movements by coastal counts during a wider period of time (April-August) and from more islands in the Northern Aegean, e.g. Limnos, Thasos. Further synergy of coastal counts with other methods used for the study of seabird foraging ecology, such as European Seabirds At Sea and telemetry.

References

^[1] Tasker, M.L., Jones, P.H., Dixon T. and Blake B.F. 1984. Counting seabirds at sea from ships: A review of methods employed and suggestion for a standardized approach. The Auk 101: 567-577

^[2] Kees, C.J., Garhte C. and Garthe S. 2004. Recording foraging seabirds at sea standardised recording and coding of foraging behaviour and multi-species foraging associations. IMPRESS internal working document