



International Waterbird Census on Skadar Lake, Montenegro

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Skadar Lake facts:

With max. area of almost 600km² and average January temperature of +5.1°C, Skadar Lake is an important breeding, wintering and stopover site for more than 280 species of Palearctic birds. The Lake comprises three distinctive biotopes: periodically flooded northern plains, the pelagic and rocky southern shore, including numerous islets.

Figure 1: Aerial photograph of Skadar Lake's north shore (Photo: A. Vizi, 2007)



IWC on Skadar Lake has been running for 22 years.

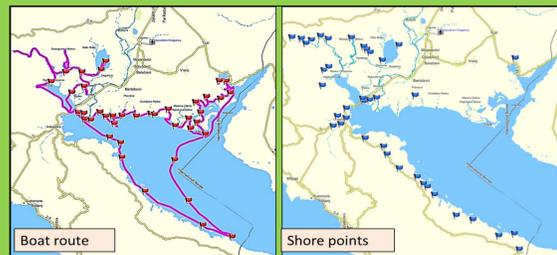
IWC on Skadar Lake was started in 1991 by the Natural History Museum of Belgrade and National Institute for Protection of Nature of Montenegro. Since 2004, it has been performed by National Park Skadar Lake and Natural History Museum of Montenegro with material and staff support by EuroNatur organization and NGO volunteers.

Count method: combination of boat and shore counts.

Skadar Lake's low flooded plains, central pelagic and deep inlets are observable only from boat, while rocky littoral can be counted from shore. Boat counting involves three experienced counters using binoculars and block method to count flocks independently. The counts are then collated and unified for different species.

GPS is used to delimit counted areas. The minimal required time is two days in good weather.

Figure 2: Standard boat route (NHM) and observation points (EuroNatur)



Results overview:

The maximum number of birds recorded during the IWC on Skadar Lake was almost 230.000 in 1998. After that, a rapid decline followed, causing merely 33.000 birds to be counted in 2005-2006. Overall IWC number on Skadar Lake has declined at rate of -6.00%*.

Figure 3: Total IWC numbers on Skadar Lake in the period 1991 - 2013



Indicative species:

Below are shown four common species with population trends*. Among species with largest decline are pochards and black-necked grebes, while Great cormorant population increases.

Figures 4-7: Population trends of common waterbirds of Skadar Lake in the period 1991-2013

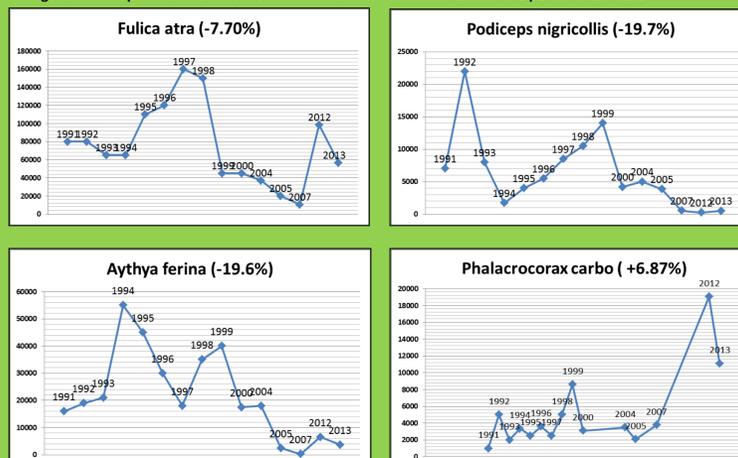


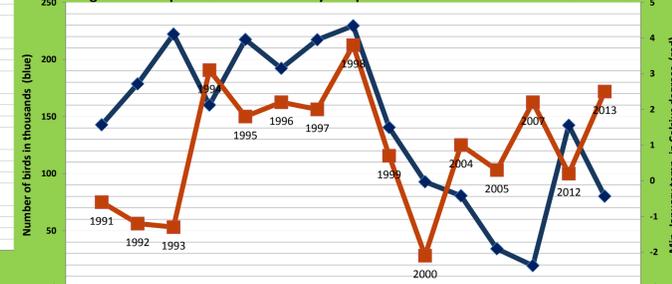
Figure 8: The most iconic inhabitant of Skadar Lake: Dalmatian pelican (Photo: O. Vizi, 2013)



Climatic factors:

The graph below shows the dependency of bird numbers (blue line) from minimal January temperatures (red line). Sudden decline in bird numbers from 1998-2000 coincides with temperature drop ($r=0.11$).

Figure 8: Comparison of min. January temperatures and IWC number on Skadar Lake



Important climatic factor at Skadar Lake is water level fluctuation. Wintering bird numbers do not seem to correlate with water level as a function of precipitation ($r= -0.31$). However, water level has a major influence on the availability of breeding habitats and start of season.

Figure 9: Flooded willows trees with Pygmy cormorant and Grey heron nests in April 2013 (Photo: A. Vizi)



Threats:

Bird hunting represents a major threat on wintering birds. It has been completely banned since 2001, and there is improvement in poaching control. The problem is insufficient warding capacities and complicated local entrances control. Disturbance is important factor for numerous littoral dwellers, where traditional fishery exists.

Human capacities:

Counting birds at Skadar Lake is a difficult task which requires specific experience. Therefore, the number of eligible people is very limited. Another issue is the actual cost and necessary equipment for boat count, which is a major obstacle in training of volunteers. Capacity building remains the most important issue in further IWC development.

Figure 4: Counters and enthusiasts on Skadar Lake 2013 (Photos: A. Vizi, N. Dubak)



Other IWC sites in Montenegro

Delta od Bojana River, together with Ulcinj saline represents another important wintering and migratory bird site in Montenegro, monitored since 2003 within EuroNatur Adriatic Flyway project. Bojana River is the only outflow of Skadar Lake, and the whole complex Skadar Lake-Bojana delta-Ulcinj saline contains >90% of IWC population.

* Population trends are calculated using Excel Chart Exponential Growth method