Population status of Black-throated Diver in Finland

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Background

- Earlier Divers were considered to be harmful in Finland and a bounty was paid for killed Black and Red-throated Divers from1892 to1905. Bounty was paid for over 1000 divers yearly.

- Divers have been totally protected since 1962.

- Nowadays Black-throated Diver is a popular symbol of ancient times and in voting arranged by BirdLife Finland in year 2010 it was chosen to be the most favoured bird in the holiday home regions.

- A Gavia working group (www.birdlife/gavia) was established in 2007 to BirdLife Finland to protect Gavia species in Finland

- Population of Black-throated Divers have been followed regularly from the eighties.

- In 2010 Black and Red-throated Divers were the ”species of the year” of BirdLife. Then a nationwide population count was organised.

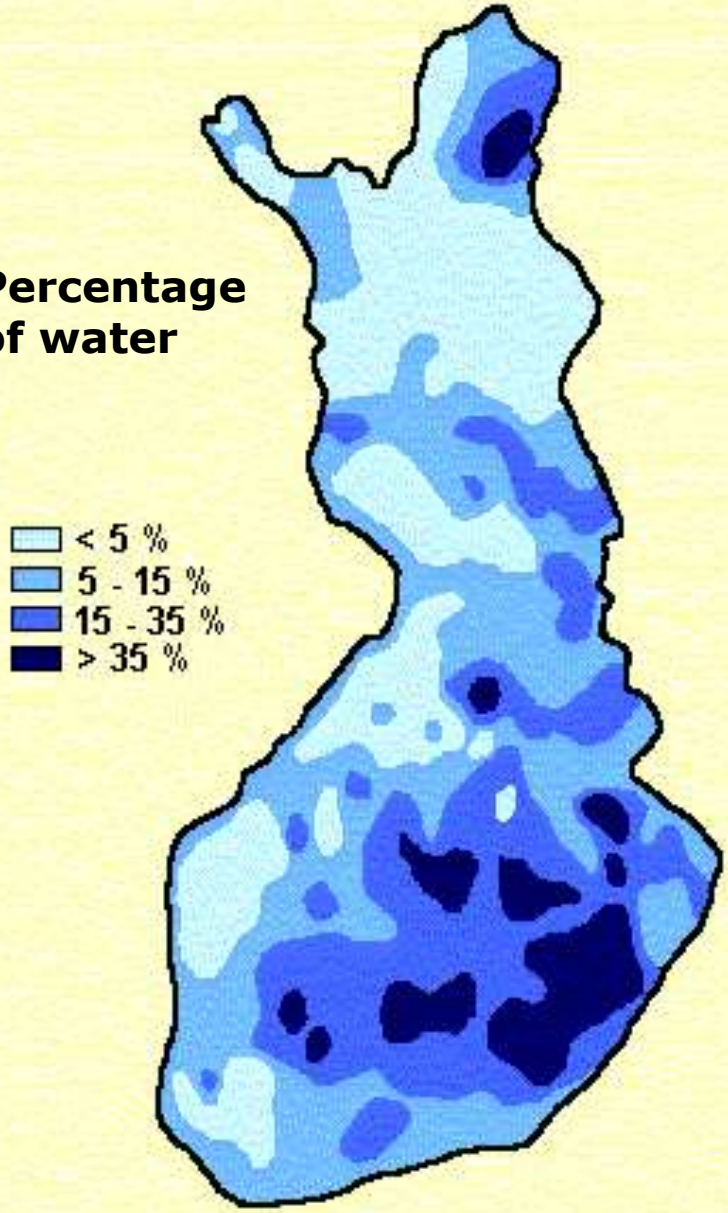
Virtanen, J., Lehtonen, P. and Kauppinen, J. (2011): Black-throated diver population in Finland 2010 and causes for population growth and estimates for chick production. Linnut Vuosikirja 126-135 (in Finnish with English summary).

Finland

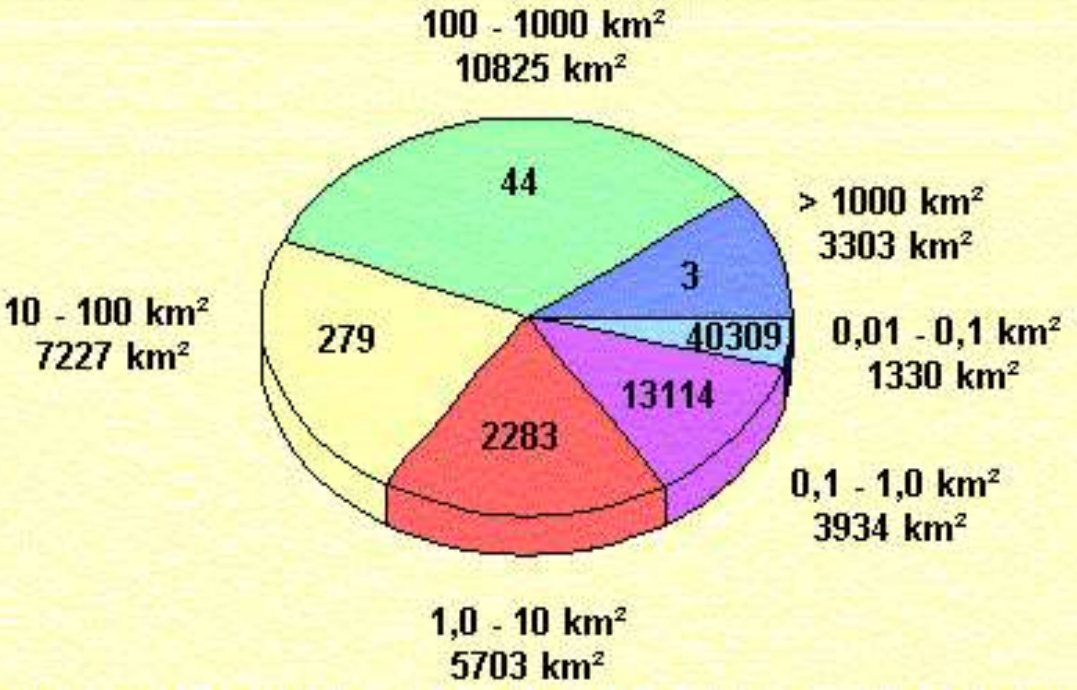
length 1160 km, breadth 540 km, area 338 1000 $km^{2,}$

number of lakes: 187 888 (33 350 km^2)

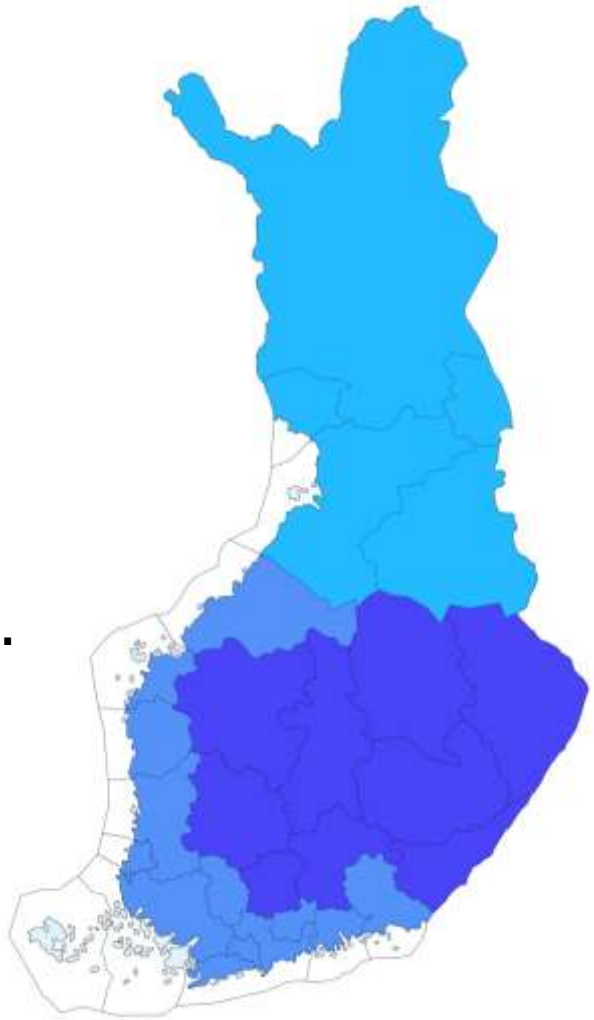
Percentage of water



Number of lakes according to size



Black-throated Divers in Finland 2010



Northern Finland
Water area km^2 : 11 000
BTD pairs: 2 500
Pairs/km^2: 0.23

Southern Finland excl. main lake area
Water area km^2 : 2 400
BTD pairs: 600
Pairs/km^2: 0.24

Main lake area

Water area km^2 : 21 000

BTD pairs: 10 000

Pairs/km^2: 0.48

Population estimates at lakes over 1 km^2 based on territory counts in main lake area were compared with earlier ones where available.

area	Lake n	Total water area (km^2)	Pairs*	Pairs **	Growth	Density / km2
< 10 km^2	9	45	30	44	39%	0,99
> 10 km^2	15	1537	333	597	79%	0,39
	24	**1582**	**364**	**643**	**76%**	**0,41**

*counts made once 1976-1997

**counts made once 2007-2011

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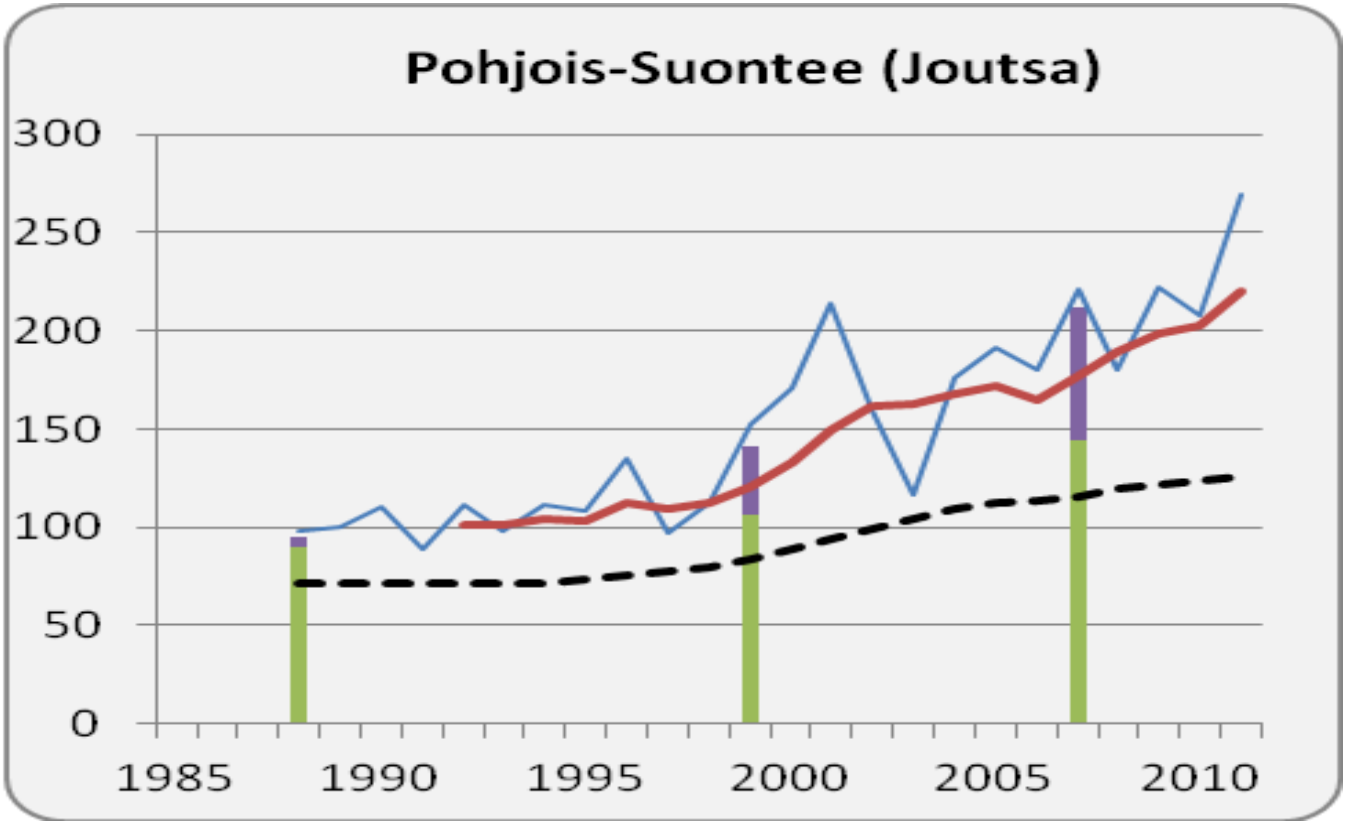
Development of the number of the Black-throated divers have been followed at four big lakes. Here results of one of them as an example.



unpaired birds in May

territory holding birds in May

nesting birds in July (an estimate)

number of individuals in July

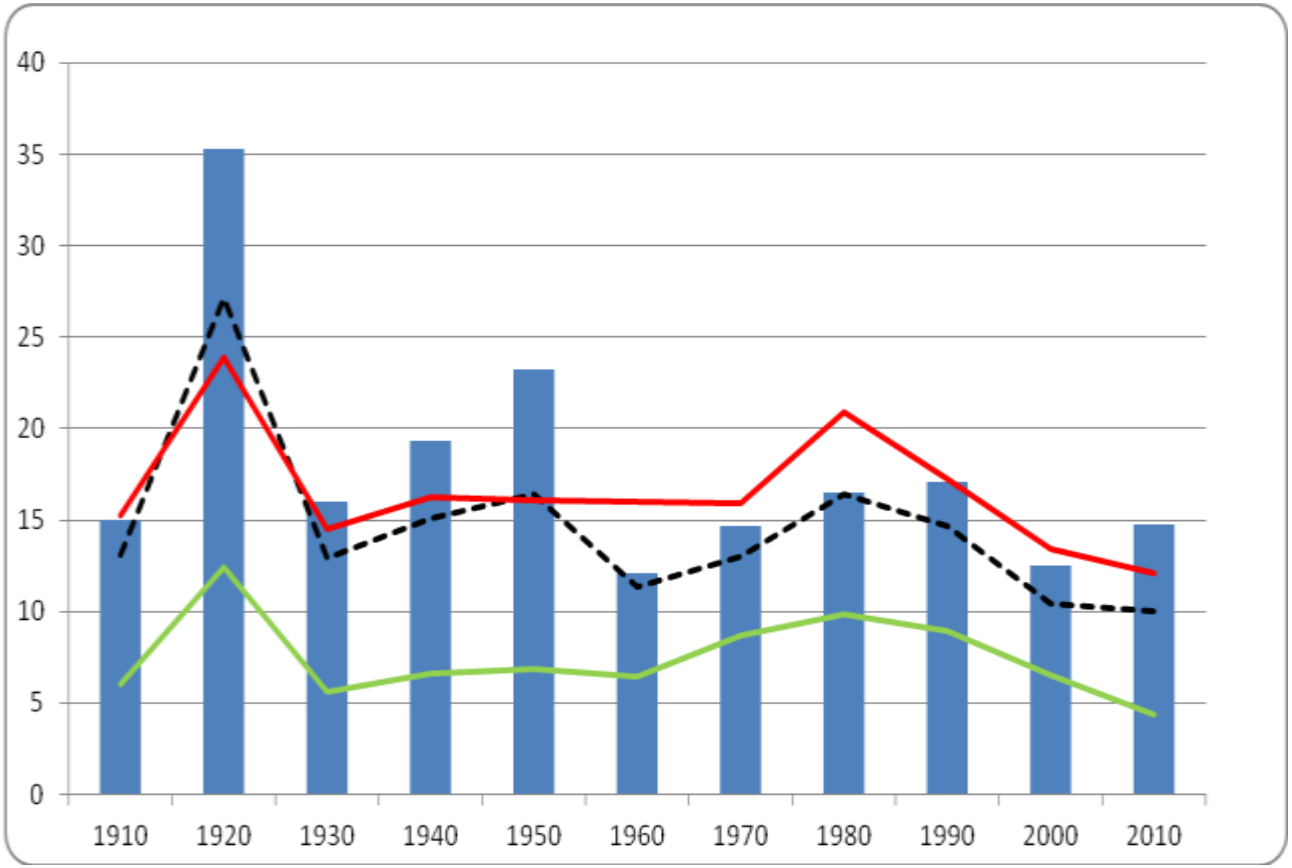
number of individuals (a sliding 5 year average),

- **Population has increased 70-100% in the last 25 years**

- Reasons are mainly unclear but lower and earlier spring flood has clearly promoted breeding success in some big lakes

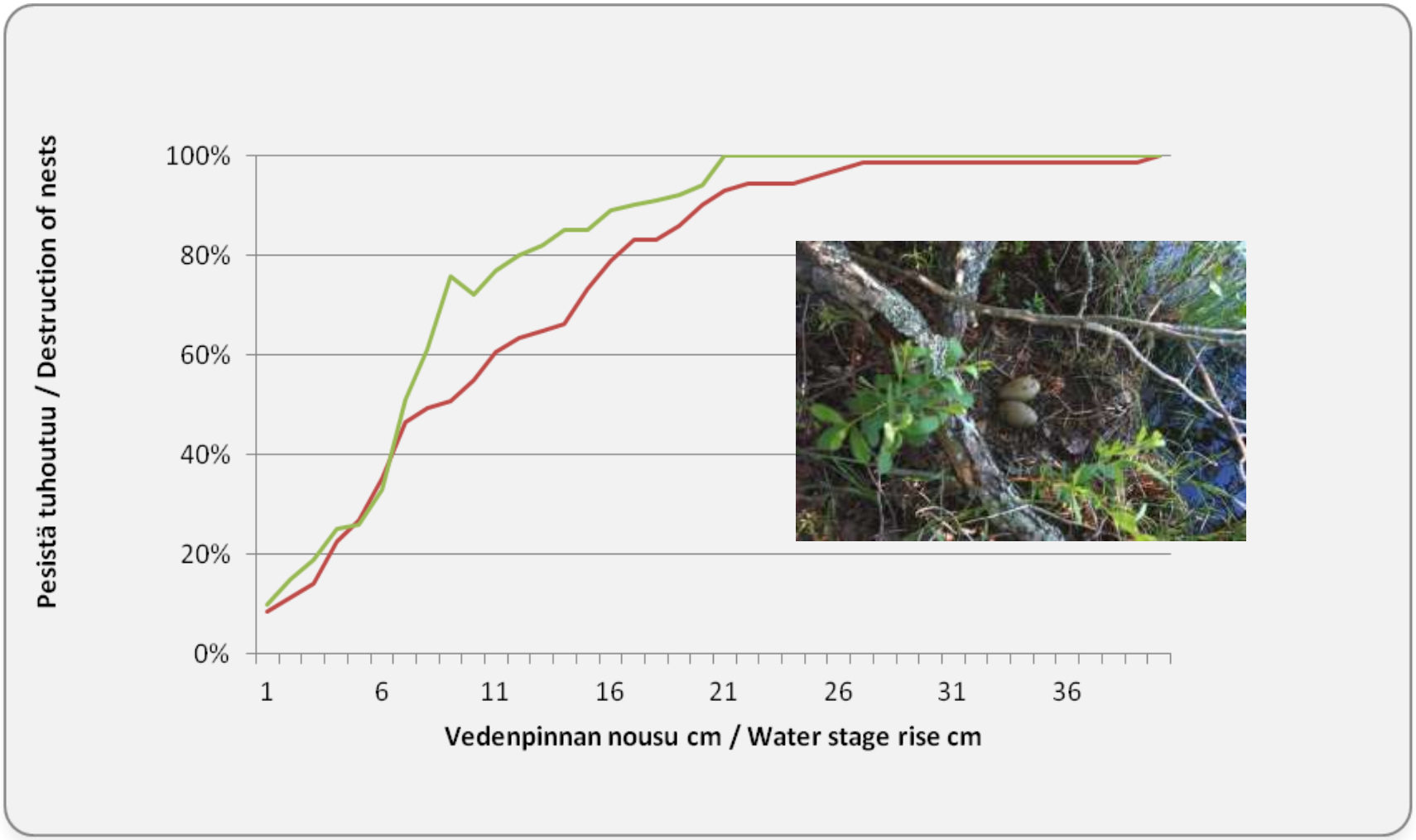
Average flood (cm) emphasized by area to the incubation period at the biggest lakes in the main lake region in Finland every decade.

- Lake Saimaa (4400 km^2),
- other lakes of over 300 km^2 (altogether 3671 km^2),
- Lakes of size 100-300 km^2 (altogether 3500 km^2
- Mean of all

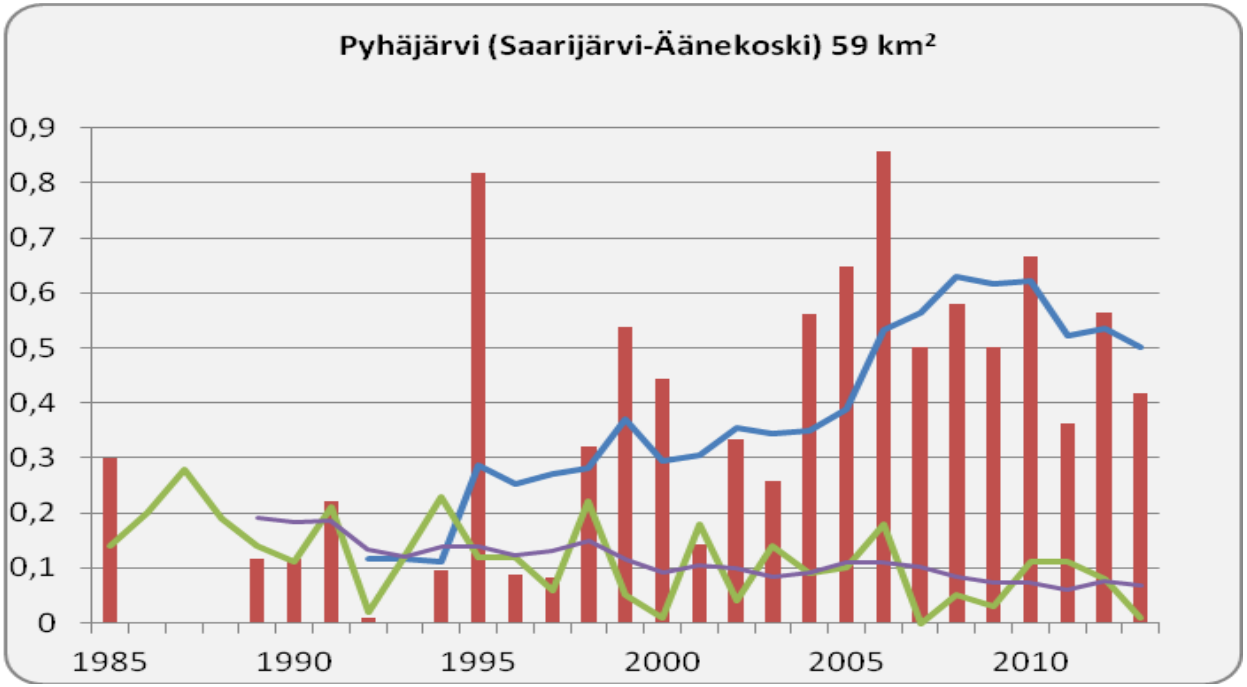


Source: Finland's environmental administration 2013

Percentage of destroyd nests according to water surface level increase during incubating period



Estimation of number of young per pair of Black-throated diver and rise of the water surface level during hatching period at four big lakes.



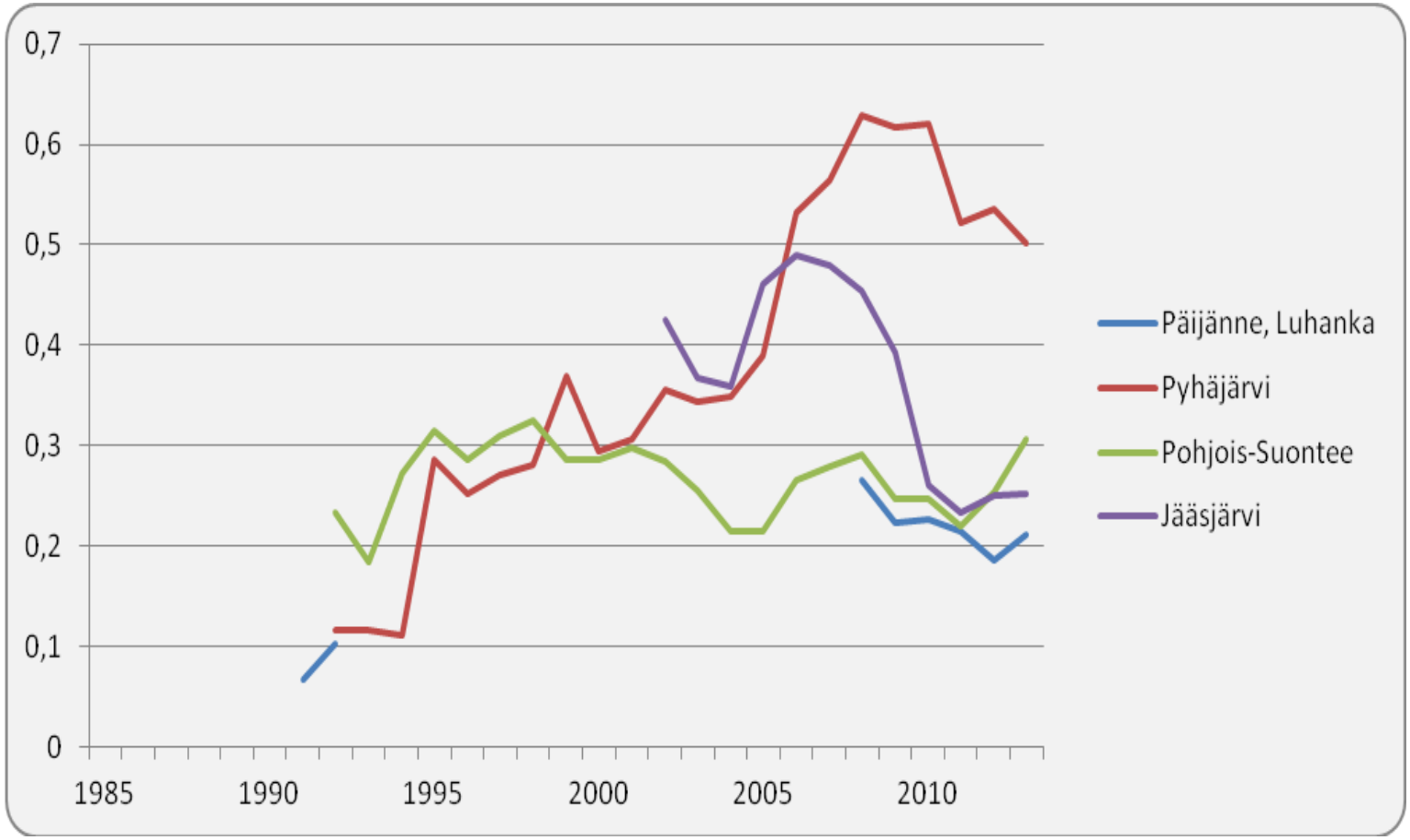
number of young per nesting pair

rise of the water surface level during hatching period (in metres).

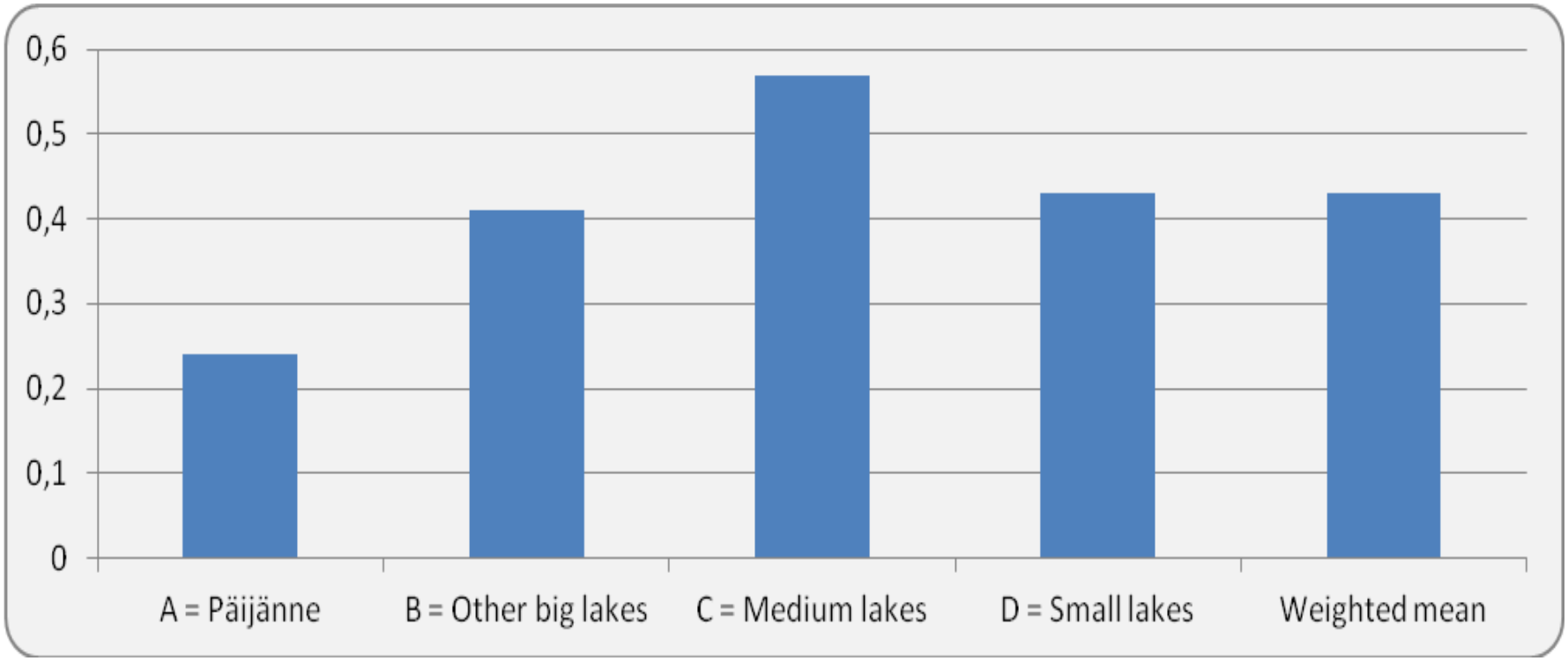
a sliding 5 year average),

number of young per nesting pair (a sliding 5 year average),

Number of young per nesting pair
(a sliding 5 year average)

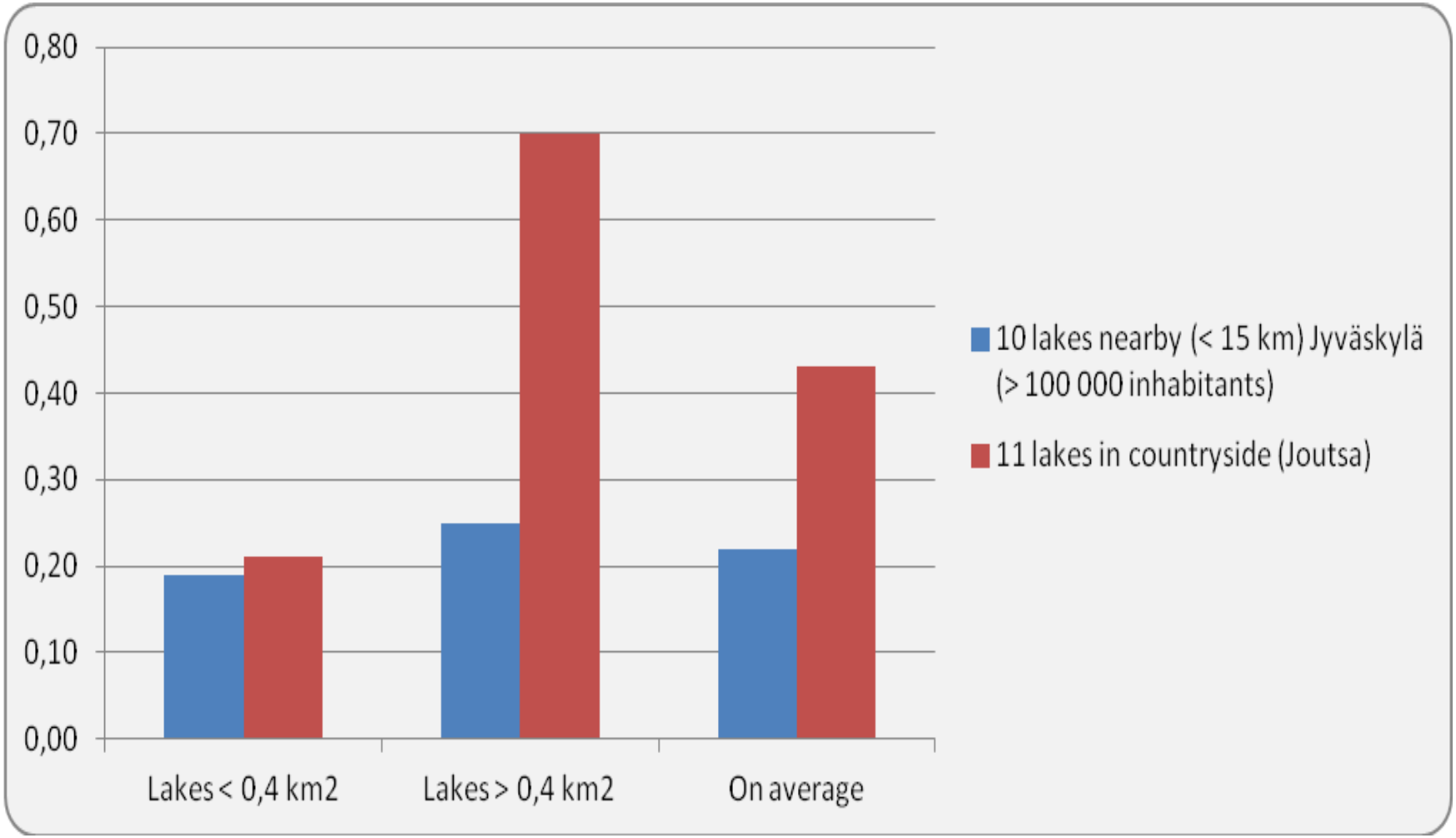


Number of young per nesting pair according to lake size in the years 2010-13

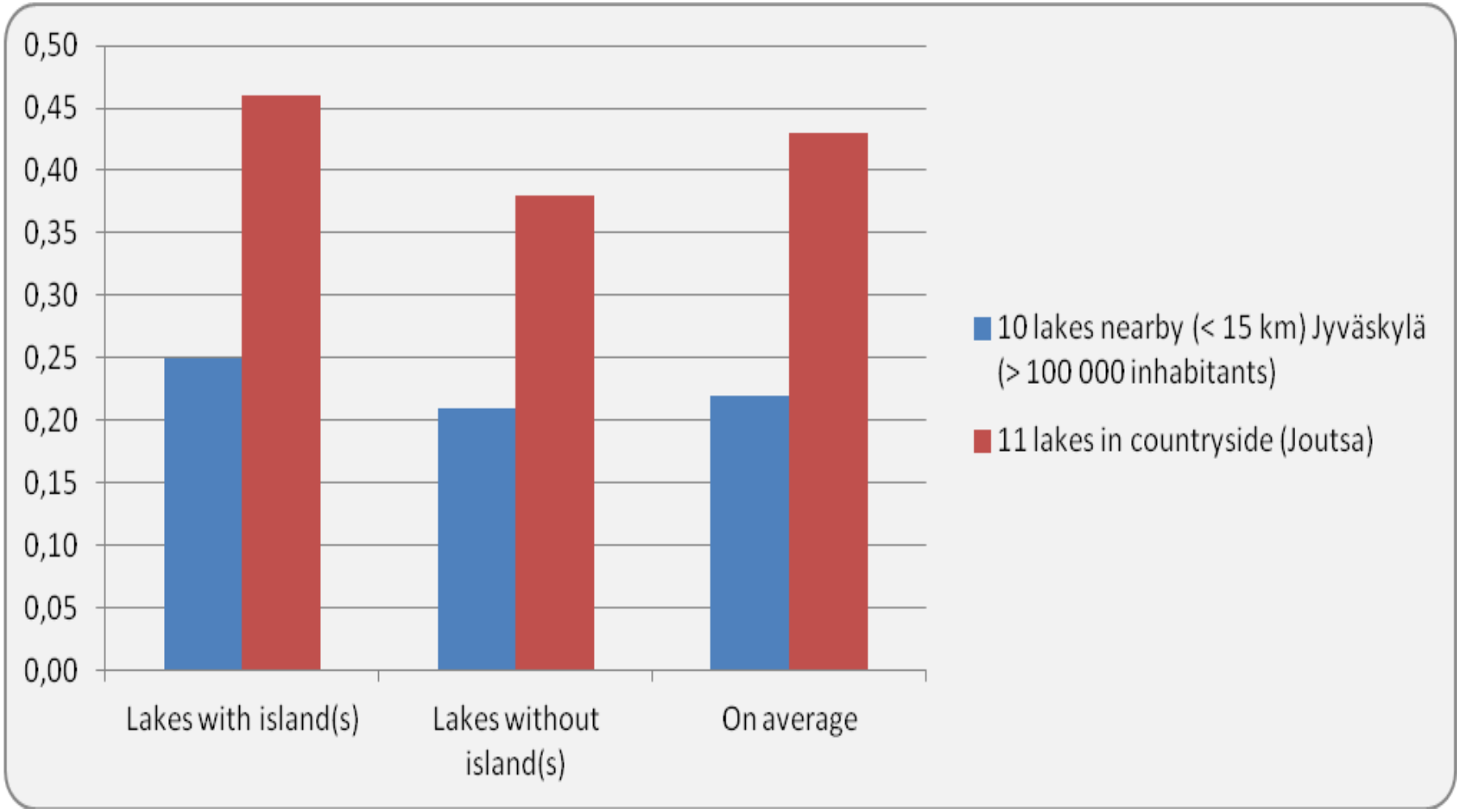


A = A part (Luhanka, 95 km^2) of Lake Päijänne 1080 km^2)
B = Big lakes (Pyhäjärvi 59 km^2, Pohjois-Suontee 52 km^2, Jääsjärvi 81 km^2)
C = Medium size (3-6 km^2) lakes (n=3)
D = Small (< 1 km^2) lakes (n=11)
Weighted mean by distribution of population according to lake size in Central-Finland area

Number of young per nesting pair in small lakes according to lake size in the years 2010-13



Number of young per nesting pair in small lakes according to existence of islands in the years 2010-13



Young per nesting pair

- without flood 0.4-0.5
- increase in some big lakes from 0.2 to 0.3 due to lower flood
- in the eighties 0.36 and now 0.42; 14 % increase
- to compensate 10 % death the number of young should be at least 12 % of total population.
- in the years 2010-13 about 13.7 % were young indicating a 1.7 percent units increase. According to the nationwide population count 2010 the number of BTDs has increased 70-100 % in 25 years indicating 2-3 % annual increase
- Good to note: Real breeding success in big lakes might be at least 10 % better than observed in one count due to missed chicks. The correction is based on repeated counts (2-3 counts/year) in some years.

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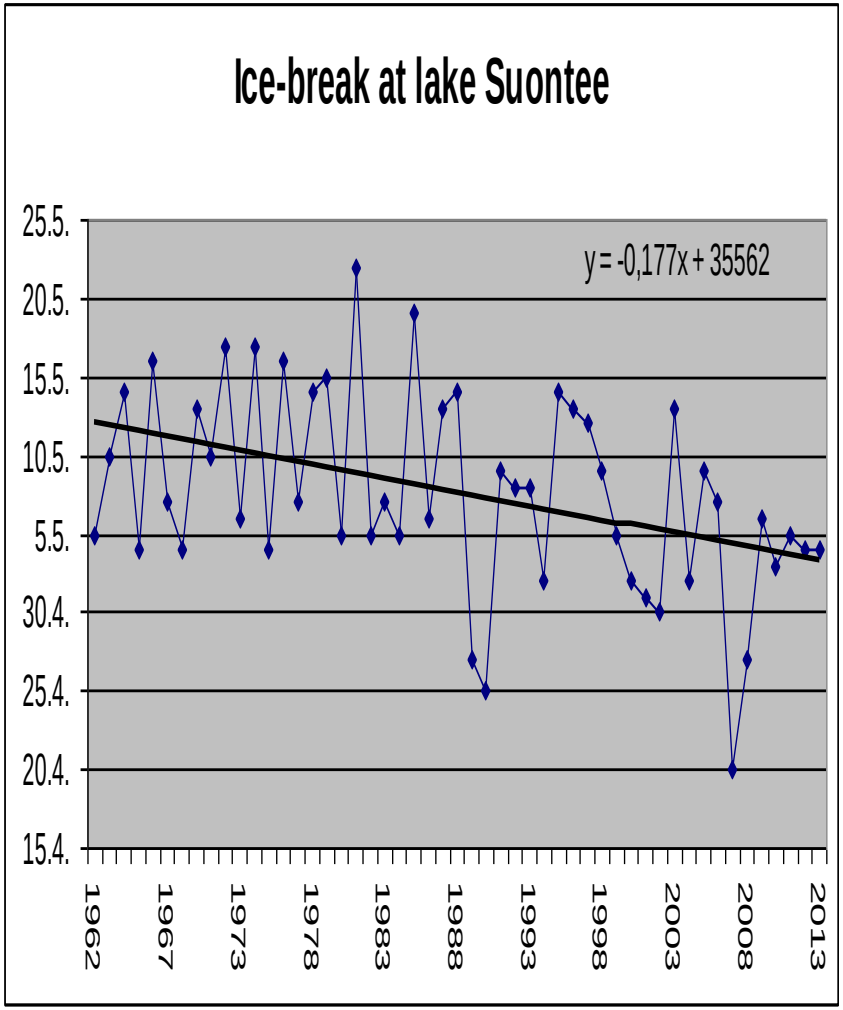
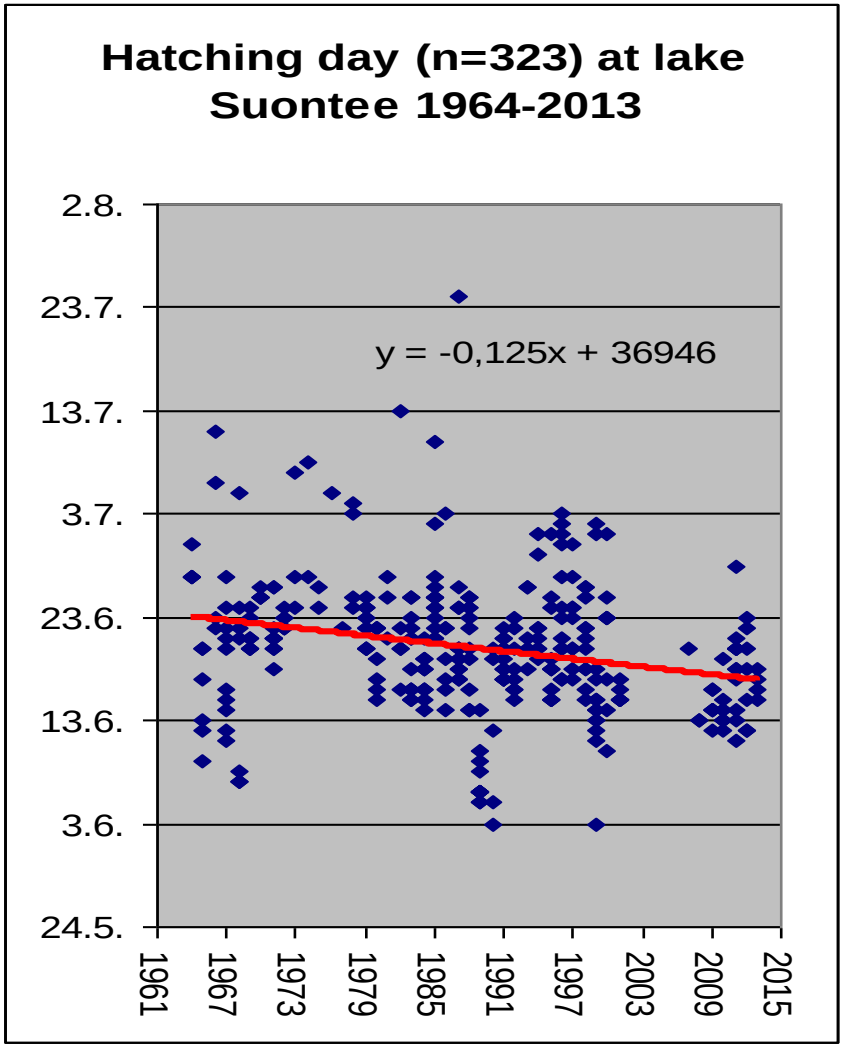
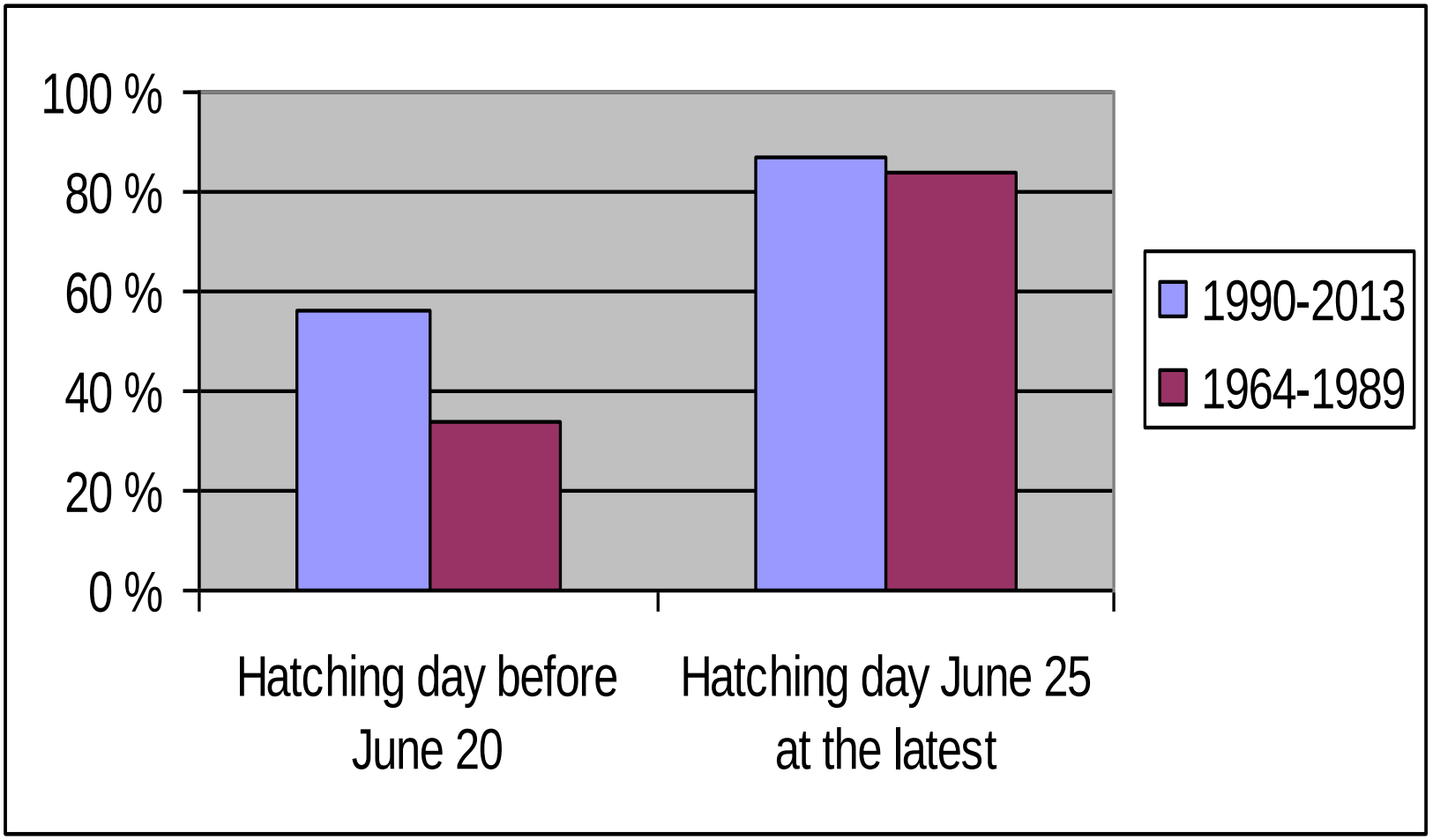
Case: Lake Suontee
Climate change gets the young hatch earlier.





Distribution of hatched young in regard to time of the Midsummer in Southern part of Lake Suontee (1964-1989 175 nests, 1990-2013 150 nests)



Conclusion

- The population of Black-throated Diver has increased in Finland during the last decades being today 12 000 – 13 000 pairs.

- Many threats, however, remain:
  - disturbance by people increases
    - rapid boats,
    - more summer cottages,
    - more time used in nesting regions

- Population counts and protection will be necessary also in coming years