



Is long-term pesticide monitoring data from two rivers (2001-2016) representative also on a national scale?

YES!

The most frequently detected substances are similar (Fig 1)

...and NO!

Number of detected substances (Fig 2) and summarized concentration (Fig 3) per sample are higher in the two monitoring rivers compared to the country-wide screening rivers.

This is due to similar pesticides being used nationally, but monitoring rivers being located in the most intensively cultivated areas with highest use of pesticides (a.i.) per hectare, in southern Sweden (Fig 4).

Ten most detected substances in monitoring rivers compared to screening rivers

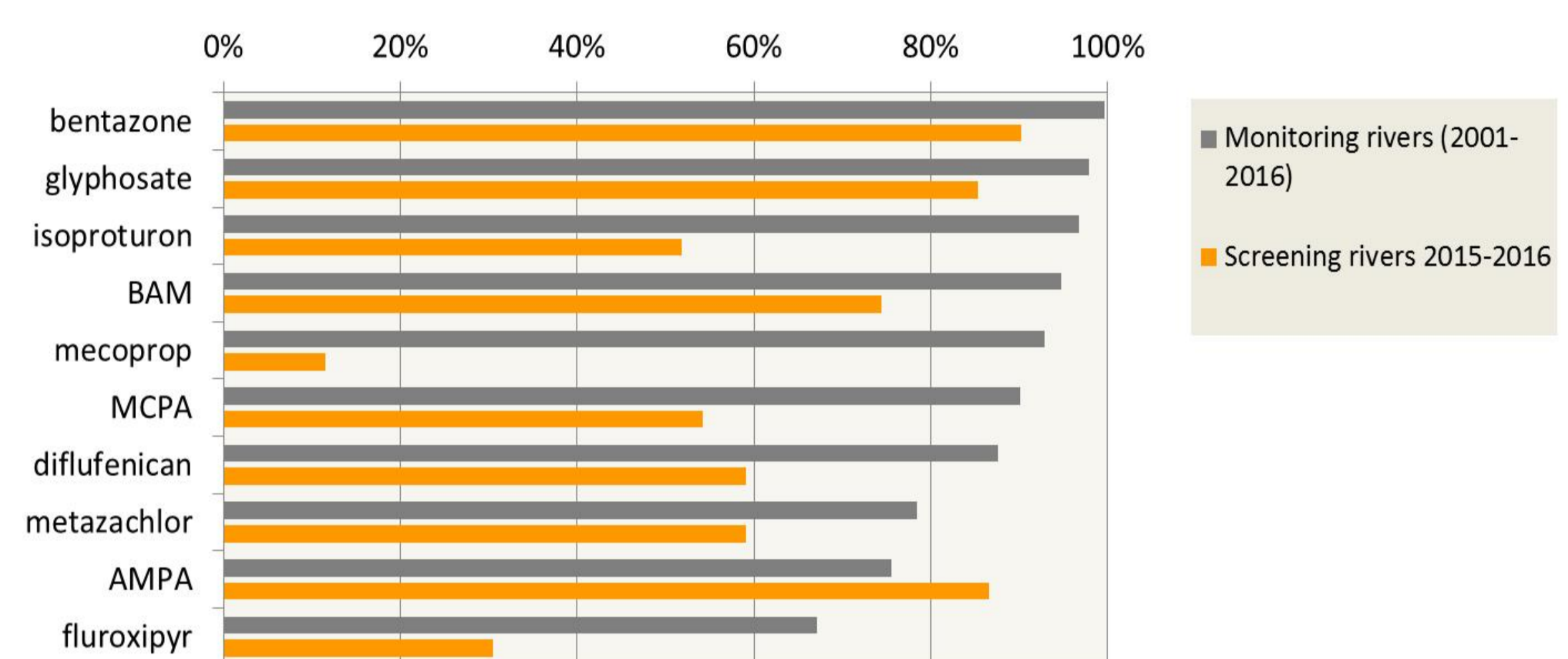


Fig 1. Of the ten most frequently detected substances (% of samples) in the monitoring rivers 2001-2016, eight were also in the top ten of the screening rivers (2015-2016): **AMPA, BAM, bentazone, diflufenican, glyphosate, isoproturon, MCPA, metazachlor** (of which all has been analyzed since 2001).

Number of detected substances per sample in two monitoring rivers (2001-2016) vs. screening rivers (2015-2016)

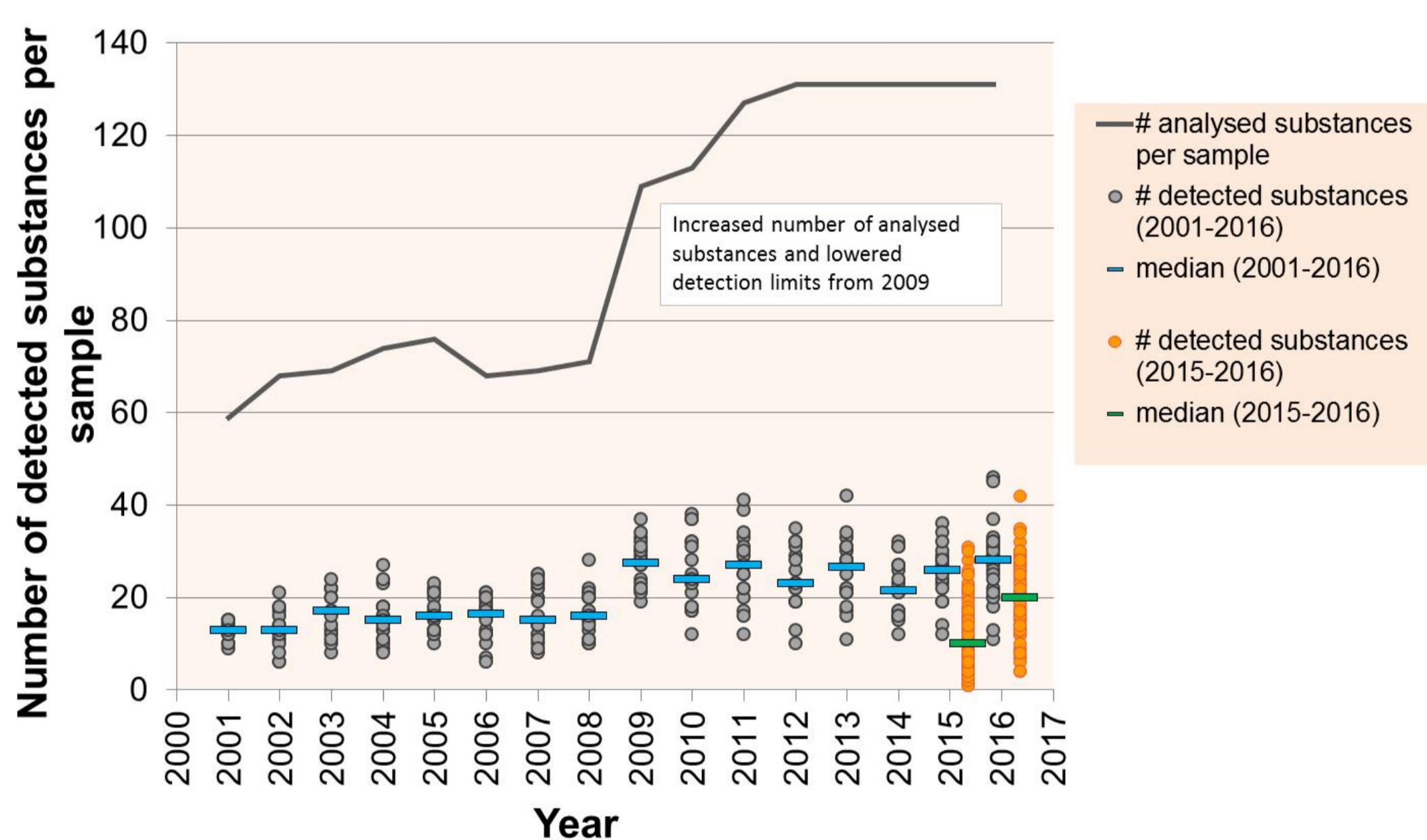


Fig 2. The number of detected substances per sample in the two monitoring rivers 2001-2016 is generally higher (annual median between 13-28 substances) compared to screening rivers 2015-2016 (median 10-20 substances).

Summarized concentration per sample in two monitoring rivers (2001-2016) vs. screening rivers (2015-2016)

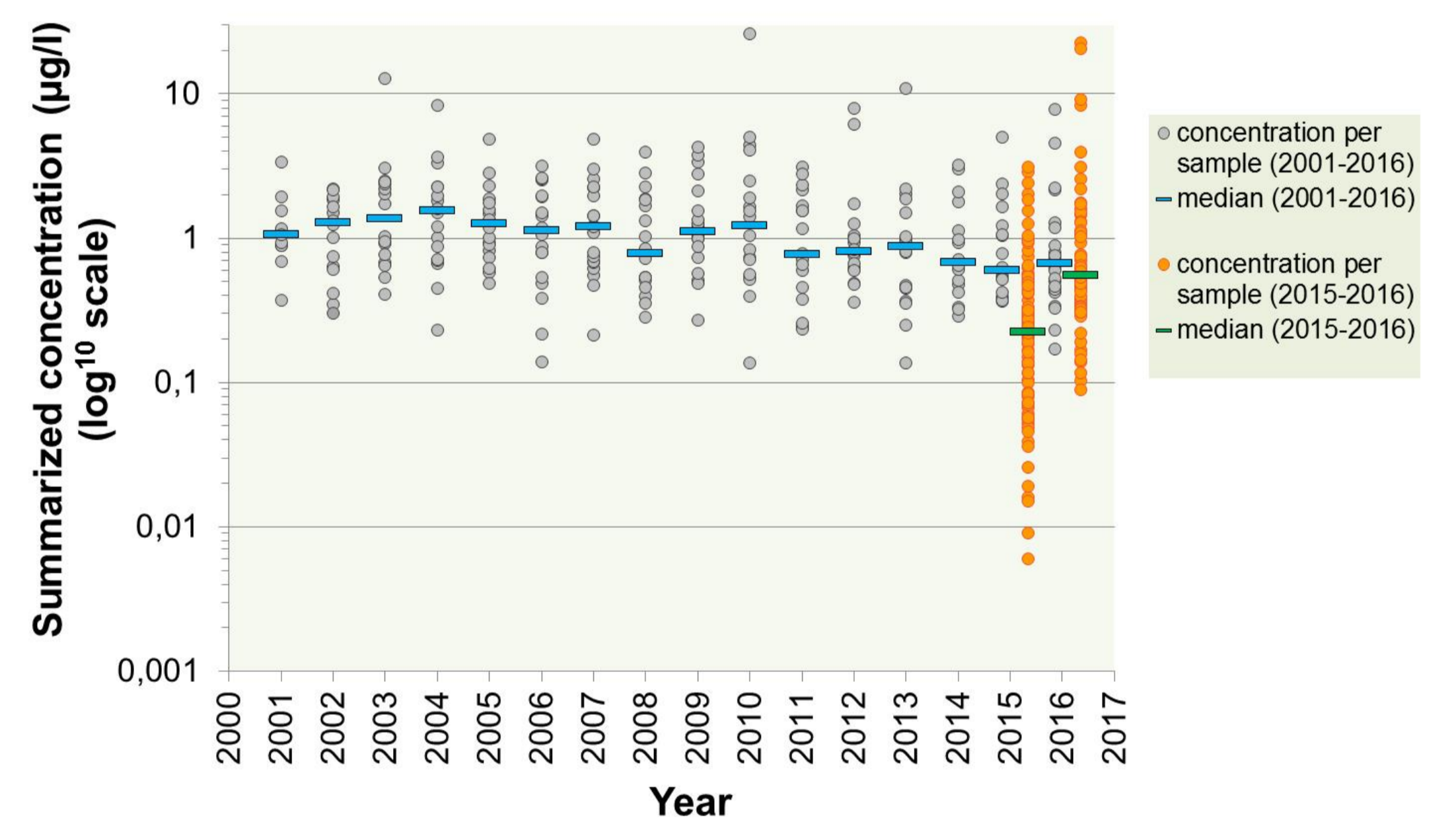
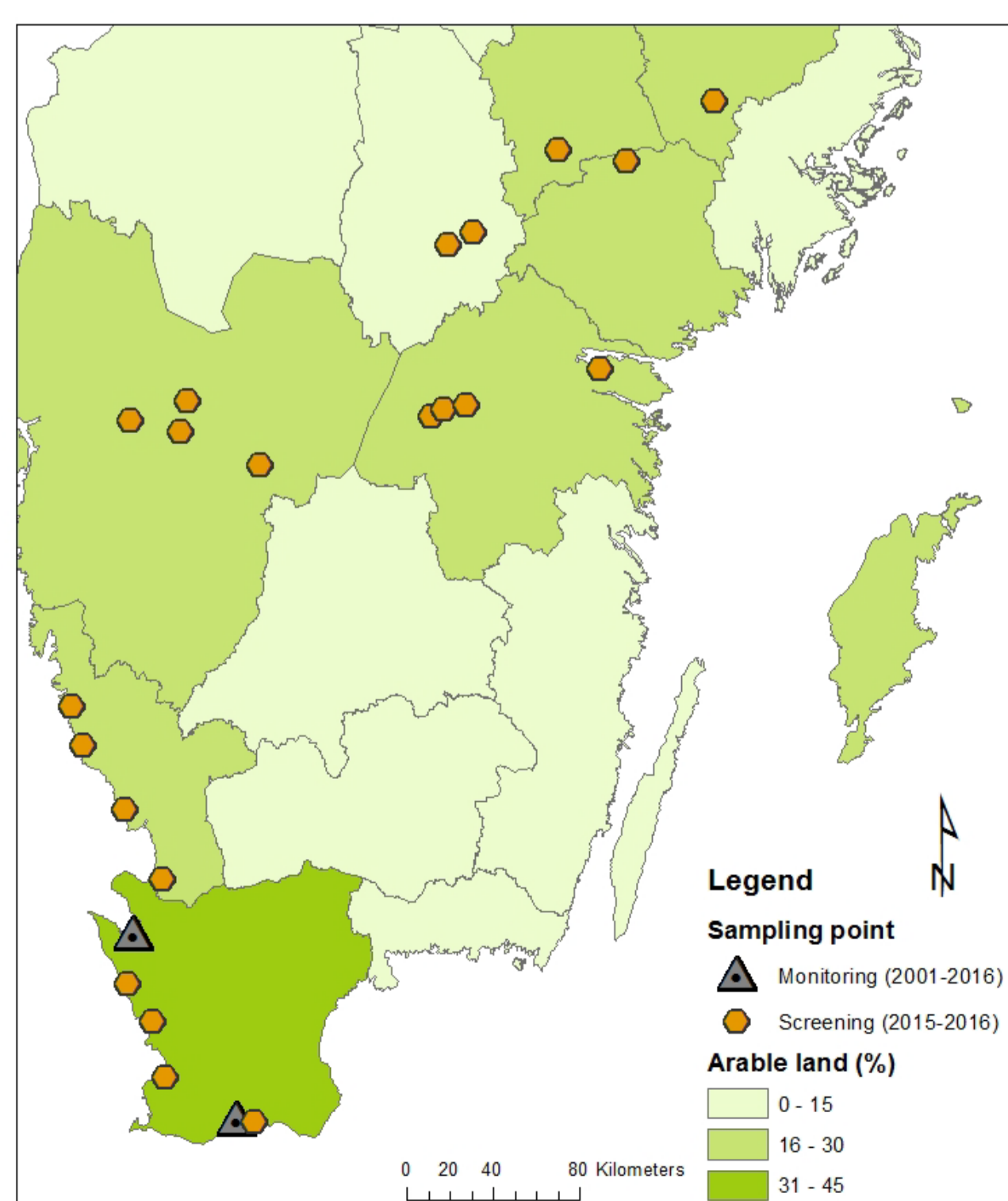


Fig 3. The summarized concentration ($\mu\text{g}\cdot\text{l}^{-1}$) per sample in the two monitoring rivers 2001-2016 is generally higher (annual median between 0,6-1,6 $\mu\text{g}\cdot\text{l}^{-1}$) compared to screening rivers 2015-2016 (median 0,2-0,5 $\mu\text{g}\cdot\text{l}^{-1}$).

Fig 4. Map of Sweden with sampling points.

Grey triangles show long-term monitoring rivers and orange points screening rivers.

Color of region indicate percentages (%) of arable land. The southernmost region is intensively cultivated and also has the highest use of pesticides (a.i.) per hectare.



Method and data included

Table present an overview of data included in the comparison. All analyses have been done at the same accredited laboratory at the Swedish University of Agricultural Sciences.

	Monitoring rivers	Screening rivers
Year of sampling	2001-2016	2015-2016
Sampling period	May-November	May-October
Type of sampling	Grab sample	Grab sample
Number of samples/year/river	6-11	5 (2015) and 9 (2016)
Number of rivers included	2	21 (2015) and 7 (2016)
Catchment size (km ²)	102 and 488	50-340
Percentage arable land (%)	57 and 72	47-79
Number of analyzed substances	59-133	131-133
Total number of samples	283	164

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