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## SUPPLEMENTARY MATERIAL

### Lake-wide assessment of trace elements in surface sediments and water of Lake Sevan

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Tab. S1. Coordinates of sampling sites in Lake Sevan and samples per site.

| <b>Sampling site code</b> | <b>N/Lat</b> | <b>E/Long</b> | <b>Samples collected</b> |
|---------------------------|--------------|---------------|--------------------------|
| W-1                       | 40°09'44.0"  | 45°29'43.5"   | Water                    |
| WS-2                      | 40°11'25.2"  | 45°30'27.9"   | Water, sediment          |
| WS-3                      | 40°15'24.5"  | 45°33'26.9"   | Water, sediment          |
| WS-4                      | 40°20'49.2"  | 45°24'15.1"   | Water, sediment          |
| WS-5                      | 40°22'53.3"  | 45°24'13.4"   | Water, sediment          |
| WS-6                      | 40°23'44.9"  | 45°21'43.9"   | Water, sediment          |
| S-7                       | 40°23'14.5"  | 45°15'36.1"   | Sediment                 |
| WS-8                      | 40°29'12.1"  | 45°14'48.6"   | Water, sediment          |
| W-9                       | 40°25'24.7"  | 45°07'07.3"   | Water                    |
| WS-10                     | 40°28'10.5"  | 45°06'39.0"   | Water, sediment          |
| WS-11                     | 40°32'37.9"  | 45°05'49.8"   | Water, sediment          |
| S-12                      | 40°30'52.6"  | 45°01'05.4"   | Sediment                 |
| W-13                      | 40°31'11.4"  | 44°59'05.4"   | Water                    |
| W-14                      | 40°31'59.1"  | 44°58'49.0"   | Water                    |

Tab. S2. TE concentrations (mg kg<sup>-1</sup>) in surface sediments of Lake Sevan.

| TEs | Big Sevan |       |        | Small Sevan |       |        |
|-----|-----------|-------|--------|-------------|-------|--------|
|     | Min       | Max   | Median | Min         | Max   | Median |
| V   | 52.4      | 91.4  | 80.6   | 21.8        | 70.2  | 55.7   |
| Cr  | 38.9      | 119.5 | 65.2   | 8.70        | 20.5  | 11.7   |
| Co  | 9.80      | 19.5  | 11.4   | 3.20        | 10.2  | 6.50   |
| Ni  | 55.6      | 225.0 | 104.0  | 15.5        | 41.9  | 21.6   |
| Cu  | 16.0      | 29.2  | 26.2   | 9.70        | 20.1  | 17.8   |
| As  | 8.30      | 16.4  | 10.4   | 4.30        | 12.9  | 7.30   |
| Mo  | 1.40      | 3.80  | 2.60   | 0.60        | 6.00  | 0.95   |
| Cd  | 0.13      | 0.26  | 0.23   | 0.09        | 0.21  | 0.10   |
| Pb  | 6.30      | 11.4  | 11.0   | 4.50        | 10.8  | 6.00   |
| Li  | 19.9      | 36.7  | 26.5   | 9.10        | 19.6  | 15.8   |
| Be  | 0.60      | 1.10  | 0.90   | 0.20        | 0.70  | 0.55   |
| B   | 34.0      | 57.0  | 47.0   | 23.0        | 85.0  | 37.5   |
| Ti  | 843       | 1150  | 1013   | 232         | 1140  | 484    |
| Rb  | 19.6      | 46.3  | 33.6   | 8.90        | 24.8  | 22.0   |
| Sr  | 264       | 937   | 729    | 401         | 2590  | 1100   |
| Y   | 7.90      | 9.30  | 8.60   | 4.00        | 12.0  | 7.30   |
| Se  | 0.70      | 1.20  | 1.00   | 0.30        | 0.90  | 0.60   |
| Ag  | 0.08      | 0.15  | 0.11   | 0.04        | 0.08  | 0.05   |
| Sn  | 0.60      | 1.40  | 1.00   | 0.50        | 1.10  | 0.75   |
| Sb  | 0.39      | 0.65  | 0.45   | 0.18        | 0.34  | 0.22   |
| Ba  | 174.      | 249   | 201    | 208         | 481   | 254    |
| Au  | 0.01      | 0.02  | 0.01   | 0.01        | 0.02  | 0.01   |
| Tl  | 0.17      | 0.19  | 0.18   | 0.06        | 0.12  | 0.10   |
| Bi  | 0.12      | 0.16  | 0.14   | 0.05        | 0.11  | 0.06   |
| U   | 1.02      | 1.87  | 1.57   | 0.78        | 2.87  | 1.24   |
| Hg  | 0.04      | 0.06  | 0.05   | 0.03        | 0.08  | 0.05   |
| La  | 14.0      | 19.6  | 15.7   | 5.3         | 22.0  | 11.0   |
| Ce  | 26.30     | 36.80 | 29.40  | 9.81        | 41.80 | 20.90  |
| Pr  | 3.00      | 4.07  | 3.34   | 1.19        | 5.15  | 2.45   |
| Nd  | 7.95      | 10.4  | 8.79   | 3.18        | 14.17 | 6.50   |
| Sm  | 2.18      | 2.71  | 2.49   | 0.90        | 4.19  | 1.87   |
| Eu  | 0.54      | 0.63  | 0.56   | 0.22        | 1.06  | 0.50   |
| Gd  | 2.02      | 2.36  | 2.23   | 0.85        | 3.72  | 1.73   |
| Tb  | 0.26      | 0.32  | 0.30   | 0.12        | 0.46  | 0.23   |
| Dy  | 1.50      | 1.82  | 1.70   | 0.65        | 2.58  | 1.31   |
| Ho  | 0.29      | 0.35  | 0.32   | 0.14        | 0.49  | 0.26   |
| Er  | 0.82      | 0.95  | 0.89   | 0.38        | 1.29  | 0.72   |
| Tm  | 0.11      | 0.13  | 0.12   | 0.05        | 0.17  | 0.10   |
| Yb  | 0.68      | 0.85  | 0.77   | 0.44        | 1.10  | 0.66   |
| Lu  | 0.10      | 0.11  | 0.11   | 0.05        | 0.13  | 0.09   |
| Hf  | 0.37      | 0.59  | 0.55   | 0.07        | 0.58  | 0.20   |
| Th  | 2.83      | 3.81  | 3.38   | 0.98        | 2.70  | 2.01   |

Tab. S3. TE concentrations ( $\mu\text{g L}^{-1}$ ) in Lake Sevan water and RfD values for different TEs.

| TEs | Big Sevan |        |        | Small Sevan |        |        | RfD <sub>ing</sub> | RfD <sub>derm</sub> |
|-----|-----------|--------|--------|-------------|--------|--------|--------------------|---------------------|
|     | Min       | Max    | Median | Min         | Max    | Median |                    |                     |
| V   | 4.71      | 6.99   | 5.42   | 4.78        | 7.12   | 5.75   | 0.005              | 0.00013             |
| Cr  | 0.586     | 2.940  | 1.950  | 0.827       | 3.270  | 2.060  | 0.003              | 0.000039            |
| Co  | 0.095     | 0.858  | 0.179  | 0.104       | 0.476  | 0.173  | 0.0003             | 0.0003              |
| Ni  | 1.87      | 5.80   | 2.68   | 2.06        | 5.48   | 2.98   | 0.02               | 0.0008              |
| Cu  | 0.877     | 8.600  | 2.640  | 1.160       | 18.600 | 2.010  | 0.04               | 0.04                |
| As  | 6.71      | 7.72   | 7.18   | 6.75        | 7.82   | 7.26   | 0.0003             | 0.000285            |
| Mo  | 3.94      | 6.39   | 4.37   | 4.13        | 4.89   | 4.59   | 0.005              | 0.005               |
| Cd  | <0.020    | 0.894  | 0.051  | 0.020       | 6.270  | 0.033  | 0.001              | 0.00001             |
| Pb  | 0.199     | 1.290  | 0.374  | 0.136       | 2.940  | 0.495  | 0.0035             | 0.000525            |
| Li  | 29.7      | 34.9   | 32.2   | 29.9        | 39.6   | 35.3   |                    |                     |
| B   | 469       | 616    | 523    | 458         | 610    | 525    | 0.2                | 0.2                 |
| Ti  | 0.942     | 10.900 | 3.800  | 0.805       | 26.700 | 2.890  |                    |                     |
| Rb  | 12.0      | 13.3   | 12.6   | 12.3        | 13.9   | 13.0   |                    |                     |
| Sr  | 221.      | 269    | 237    | 234         | 250    | 241    | 0.6                | 0.6                 |
| Ag  | <0.050    | 1.430  | 0.050  | 0.050       | 0.348  | 0.050  |                    |                     |
| Sn  | <0.050    | 0.394  | 0.059  | 0.050       | 0.239  | 0.055  |                    |                     |
| Sb  | 0.176     | 0.994  | 0.422  | 0.171       | 0.829  | 0.405  | 0.0004             | 0.00006             |
| Ba  | 26.3      | 36.7   | 29.2   | 26.2        | 34.6   | 28.6   | 0.2                | 0.14                |
| Bi  | <0.010    | 0.167  | 0.020  | 0.010       | 0.025  | 0.010  |                    |                     |
| U   | 0.863     | 1.150  | 1.030  | 0.928       | 1.180  | 1.080  |                    |                     |
| Hg  | 0.002     | 0.037  | 0.005  | 0.002       | 0.028  | 0.004  | 0.0003             | 0.00024             |

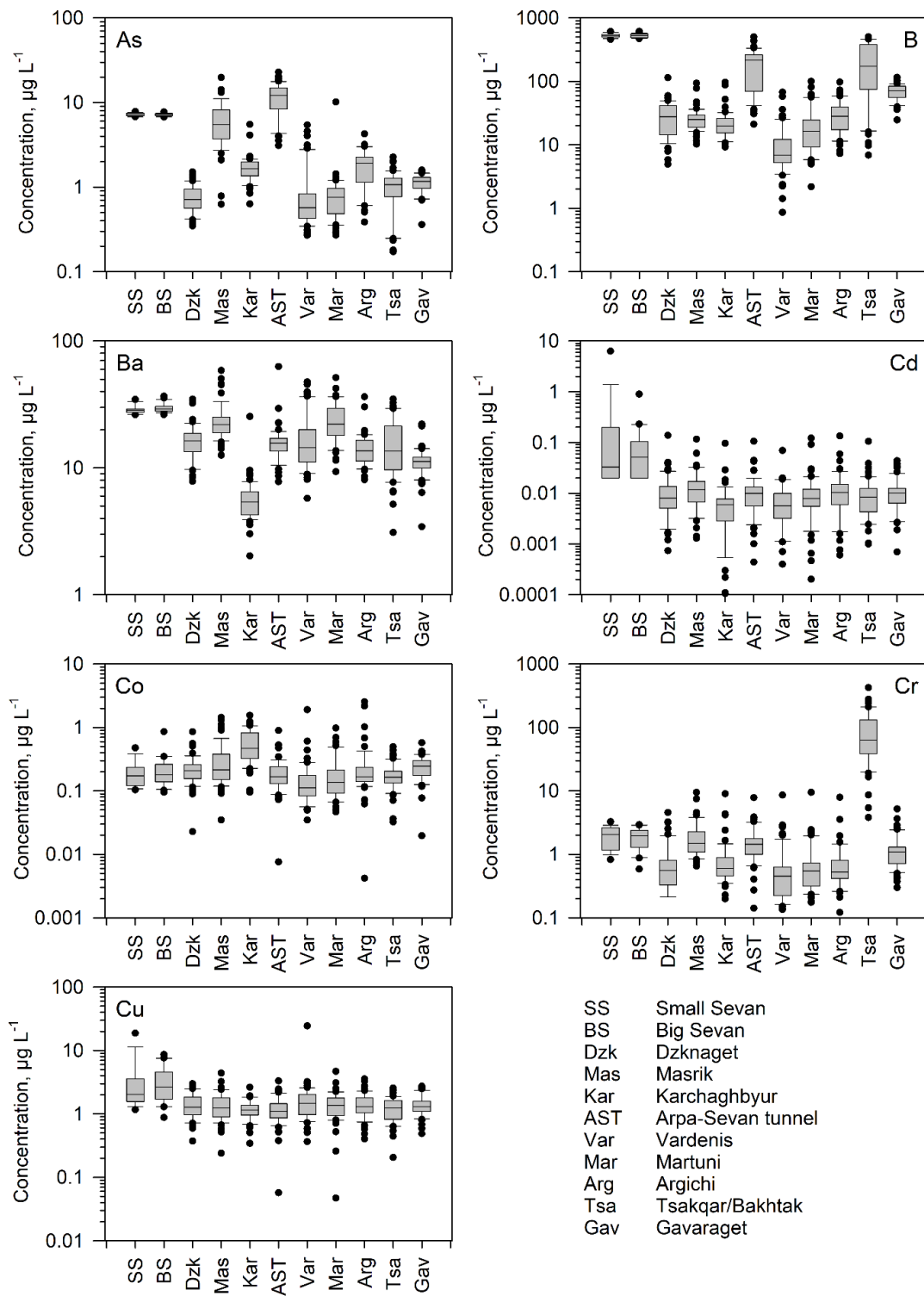


Fig. S1. Comparison of the TE concentrations in the water of Lake Sevan from this study with monitoring results for the main surface inflows of Lake Sevan provided by the Hydrometeorology and Monitoring Center of the Ministry of Environment of RA for the period 2010-2017.

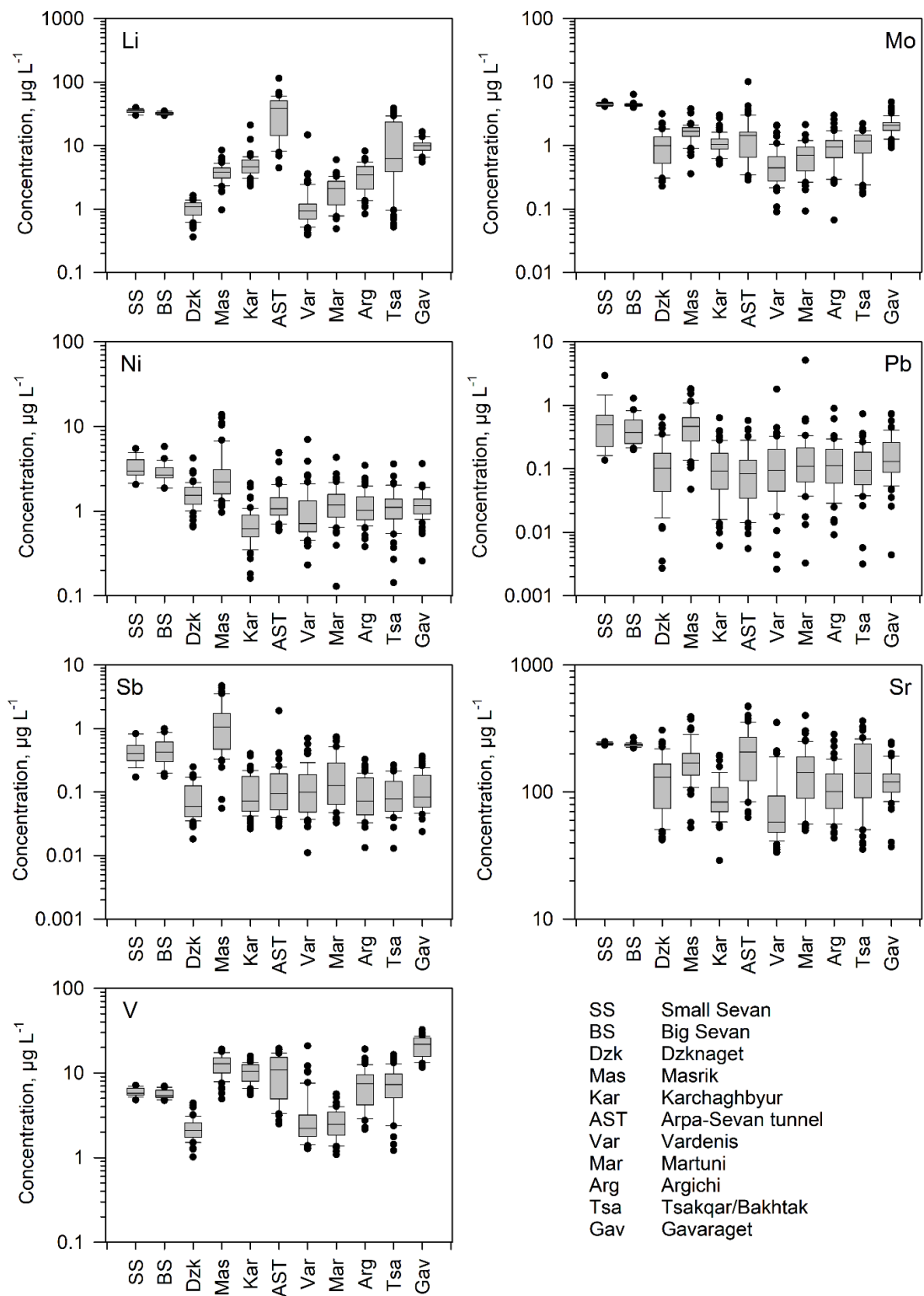


Fig. S1 (continued). Comparison of the TE concentrations in the water of Lake Sevan from this study with monitoring results for the main surface inflows of Lake Sevan provided by the Hydrometeorology and Monitoring Center of the Ministry of Environment of RA for the period 2010-2017.