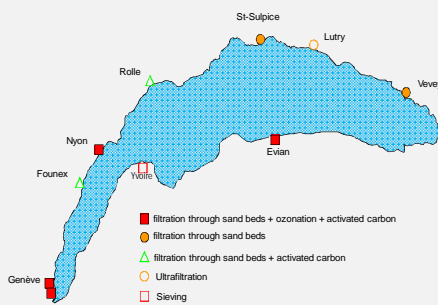


MICROPOLLUTANTS IN LAKE WATER

Lake Geneva : drinking water resource for 900'000 inhabitants

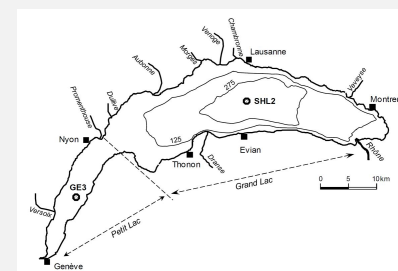
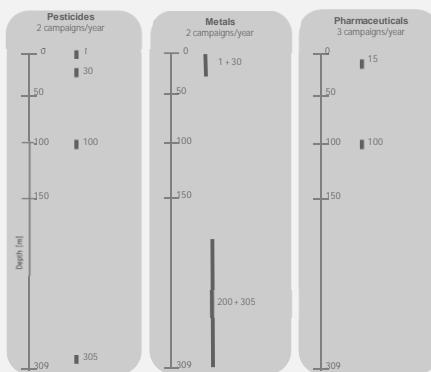
Water monitoring program

Location of the sampling sites - SHL2 and GE3

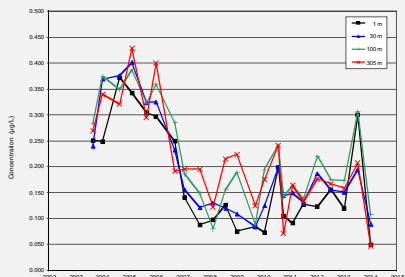


Source : www.cipel.org

10 drinking water treatment plants with various filtration processes. Only water treatment followed by activated carbon filtration and ozonation can retain the micropollutants present in lake water.



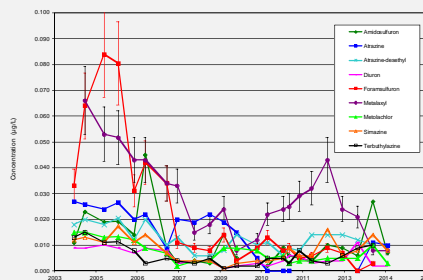
Change in the total concentrations of the pesticides surveyed in SHL2 (1, 30, 100, 305m)



Since 2004 and each year, more than four hundred pesticides and fifty drugs are analysed. The concentrations of total pesticides in the lake has stabilised since 2008 and ranged between 0.12 and 0.18 µg / L.

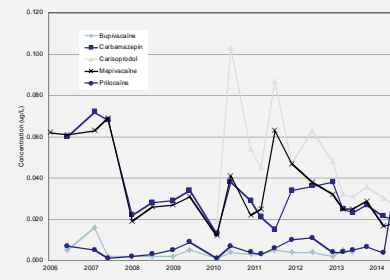
Source : www.cipel.org

Change in the concentrations of some pesticides in SHL2 (30m)



The individual concentrations of each pesticide remained below those set out in the legislation for drinking water (0.1 µg / L per compound).

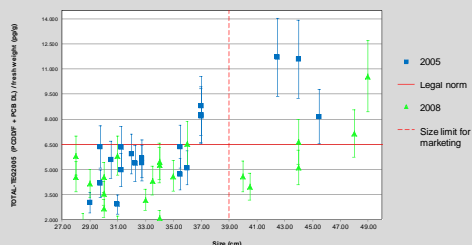
Change in the concentrations of some pharmaceuticals in SHL2 (100 m)



For pharmaceuticals, since 2014, two additional surveys enhanced with an enlarged pallet of 58 molecules comprising amongst others, psychotropics, failed to reveal residues other than those already measured in previous surveys (anaesthetics, antiepileptics and muscle relaxants).

MICROPOLLUTANTS IN FISH FROM LAKE GENEVA

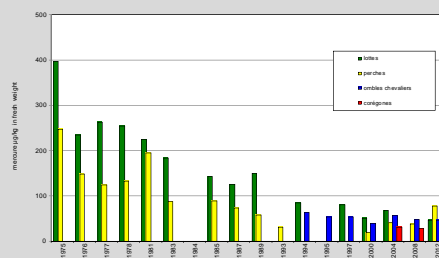
Evolution of PCBs and dioxins in the flesh of Arctic char



The analysis of PCBs and dioxins have shown high concentrations of dioxin-like PCB types in the flesh of Arctic char (*Salvelinus alpinus*), which led authorities to prohibit commercialization of fish longer than 39 cm.

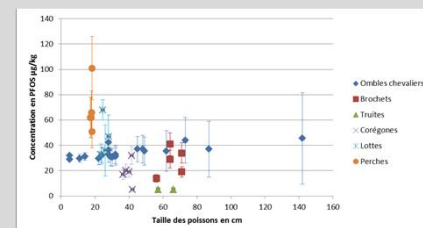
Source : www.cipel.org

Evolution of mercury concentration in fish from Geneva lake from 1975 to 2012



Mercury levels in fish remain low and fully meet food safety requirements.

Contents in PFOS in the flesh of fishes



Analysis of perfluorinated substances (PFOS) showed significant levels of contamination.

MICROPOLLUTANTS IN SEDIMENT AND BIOTA

Mussels (*Dreissena polymorpha*) and sediments are also monitored every 10-20 years. In 2015, a large survey on sediments is in progress with special attention to heavy metals, PCBs, pesticides, PFOS and some emerging pollutants.

References

EDDER P., ORTELLI D., KLEINA. (2013). Micropolluants dans plusieurs espèces de poissons du Léman. Rapp. Comm. int. prot. eaux Léman contre pollut., Campagne 2012, 70-91.
 RAMSEIER S., EDDER, P. ORTELLI D., KLEIN, A. (2014) : Métaux et micropolluants organiques dans les eaux du Léman. Rapp. Comm. int. prot. eaux Léman contre pollut., Campagne 2013, 69-82.