MO135 Mechanism of PFOS effects on posterior swim bladder chamber inflation in zebrafish larvae L. Vergauwen, University of Antwerp / Zebrafishlab Dept Veterinary Sciences; A. Hagenaars, Zebrafishlab Dept Veterinary Sciences; E. Stinckens, University of Antwerp; L. Bervoets, University of Antwerp / Biology - SPHERE; N. Vinas, Mississippi State University / Environmental Laboratory; D. Knapen, University of Antwerp / Zebrafishlab Dept Veterinary Sciences. Perfluorooctane sulphonate (PFOS) is one of the most commonly detected perfluorinated alkylated substances in the aquatic environment due to its persistence and the degradation of less stable compounds to PFOS. PFOS is known to cause developmental effects in fish. The main effect of PFOS in zebrafish larvae is an uninflated swim bladder. As no previous studies have focused on the effect of PFOS on zebrafish swim bladder inflation, the exact mechanisms leading to this effect are currently unknown. The objective of this study was to investigate the mechanism by which PFOS impairs swim bladder inflation. To this end, we first determined the exposure windows during early zebrafish development that are sensitive to PFOS exposure and result in impaired swim bladder inflation. Seven different time windows of exposure (1-48, 1-72, 1-120, 1-144, 48-144, 72-144, 120-144 h post fertilization (hpf)) were tested based on the different developmental stages of the swim bladder. These seven time windows were tested for four concentrations corresponding to the EC-values of 1, 10, 80 and 95% impaired swim bladder inflation (EC = 0.70 mg L^2 1, EC = 1.14mg L²1, EC = 3.07 mg L²1 and EC = 4.28 mg L²1). At 6 days¹⁰ post fertilization,⁸⁰ effects on survival, hatching, swim bladder inflation and size, larval length and swimming performance were assessed. For 0.70 mg L^{2} 1, no significant effects were found for the tested parameters while 1.14 mg L²1 resulted in a reduction of larval length. For 3.07 and 4.28 mg L²1, the number of larvae affected and the severity of effects caused by PFOS were dependent on the time window of exposure. Larvae that were only exposed early (1-48 hpf) or late (120-144 hpf) during development showed no effects on the studied endpoints. The results demonstrate that PFOS does not affect the budding phase, and does not cause deflation of already inflated swim bladders. PFOS clearly affects processes that take place during the inflation phase and might also have an effect on the formation of the tissue layers forming the swim bladder. Currently, we are further investigating these processes by performing microarray analyses and relating our findings to accumulated doses.