TUPC20 The role of diet and age: organohalogen accumulation in an avian top predator M.E. Løseth, The Norwegian University of Science and Technology / Biology; N. Briels, Norwegian University of Science and Technology / Biology; I. Eulaers, Aarhus University (AU), Arctic Research Centre / Biology; T. Nygård, T.V. Johnsen, J.O. Bustnes, Norwegian Institute for Nature Research NINA; D. Herzke, NILU - Norwegian Institute for Air Research / FRAM Centre Tromso; G. Poma, G. Malarvannan, University of Antwerp / Toxicological Center; A. Covaci, University of Antwerp, Toxicological Center / Toxicological Centre Dep of Pharmaceutical Sciences; B.M. Jenssen, Norwegian University of Science and Technology / Biology; V. Jaspers, Norwegian University of Science & Technology / Biology. Occupying a high trophic level, the white-tailed eagle (WTE; *Haliaeetus albicilla*) can accumulate a wide range of organohalogenated contaminants (OHCs), even at an early age. Their diet consists mainly of fish and seabirds; thus, a long food chain potentially resulting in biomagnification of OHCs. The nestlings can be exposed to high levels of OHCs through maternal transfer from the egg, and later through the diet. As nestlings develop and grow, concentrations of maternally derived compounds are diluted. Few studies are accounting for the biological factors of age and increase in body mass when monitoring OHCs in nestlings. The aim of the present study was to investigate how differences between years, locations and dietary tracers can explain variation in OHC accumulation in plasma of WTE nestlings. Stable isotopes (SI) of nitrogen ($?^{15}N$) and carbon ($?^{13}C$) were applied as proxies for trophic level and dietary carbon source, respectively. In addition, we included the possible confounding effects of age and body mass on the contaminant variation. Samples were obtained in 2015 and 2016 from 70 WTE nestlings from two archipelagos in Norway, Smøla and Steigen. In total, 14 polychlorinated biphenyls (PCBs), 7 organochlorinated pesticides (OCPs), 5 polybrominated diphenyl ethers (PBDEs) and 8 per- and polyfluoroalkyl substances (PFASs) were quantified in over 50 % of the analyzed plasma samples at each location and year. The WTE is a marine top predator; however due to the topography of the island Smøla WTEs may feed on a mixed terrestrial and marine diet. According to our preliminary analyses, WTEs in Steigen are feeding on a slightly higher trophic level than WTEs in Smøla WTEs, and may consequently accumulate more of the investigated OHCs. Though, in our analyses the SI values were only important in explaining variation in POPs but not PFAS levels. We also observed that age at sampling is an important factor, as legacy POPs are decreasing while PFASs are increasing with age. However, there are differences between years at each location with higher OHC concentrations for Steigen in 2015 and Smøla in 2016, not explained by age or diet. Our analyses also demonstrate large variations within nests at both locations, suggesting that siblings may not always share prey. We hereby emphasize the importance of ecological and biological variables when investigating OHCs in an avian top predator.