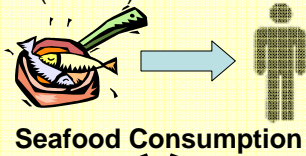


Introduction and Objective

For humans: diet is major source of exposure to **brominated flame retardants**, e.g. polybrominated diphenyl ethers (PBDEs)



BENEFITS

Good protein source
High omega-3 fatty acid concentration

RISKS

Source of contaminants:
e.g. polybrominated flame retardants, PCBs

This benefit-risk conflict is largely investigated, but intake data of PBDEs via seafood are scarce

Objective: Intake assessment of **PBDEs** via **seafood** consumption for a subgroup of the Belgian population

Materials and Methods

Seafood consumption data:

7-day estimated food record of 341 Flemish boys and girls (March-May, 1997);
34 different seafood species

PBDE concentration data:

Databases of published data (30 international publications); only for BDE-47, 99, and 100 sufficient data

Probabilistic intake assessment model

Problntake: one-dimensional Monte Carlo simulation program

Results and Discussion

Data describing PBDE-concentrations in seafood species relevant for Belgian consumption are scarce

⇒ The intake assessment is focussed on only three congeners: BDE-49, 99, and 100

⇒ PBDE concentrations had to be grouped over species (according to the fat content of the species, as PBDEs are lipophilic); the number of available data per fat group and per congener can be found in the legend of the figures below

Figures 1-3 Cumulative probability functions expressing the intake of BDE-47 (left), 99 (middle), 100 (right) for the whole study population (ng/kg body weight (bw)/day) via seafood consumption – the number of available data points per fat group and per congener are given between brackets

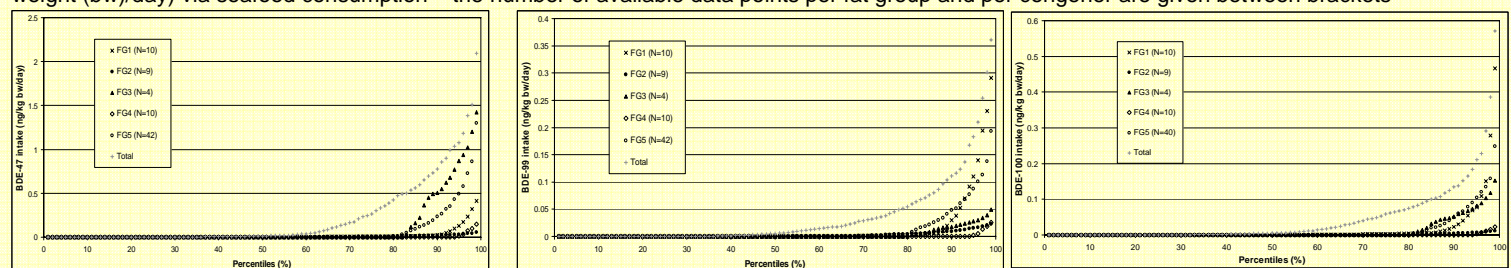


Table 1 Intakes at different percentiles for BDE-47, 99, and 100 for the study population (ng/kg bw/day) via seafood consumption

	<u>BDE-47</u>	<u>BDE-99</u>	<u>BDE-100</u>
50 th percentile	0.013	0.005	0.005
75 th percentile	0.268	0.038	0.058
95 th percentile	1.078	0.183	0.211

- A large part of the population has a negligible intake of the three PBDE-congeners, mainly due to low seafood consumption (36% non-consumers)
- The higher intake of BDE-47 compared to BDE-99 and 100 is in accordance with literature data
- For BDE-47: highest contribution from FG3-fishes (e.g. anchovy, halibut, tuna); for BDE-99: high contribution from FG1-fishes (e.g. cod, crab, whiting, saithe) and FG5-fishes (e.g. salmon, herring, eel, mackerel)
- No toxicological guidance value exists to evaluate the assessed intakes

Conclusion

- Publicly available data of PBDE-concentrations in seafood relevant for Belgian consumers are **scarce**, more data would be useful to conduct a detailed intake assessment
- For a large part of the population, the intake of PBDEs via seafood is low; nevertheless, **no guidance value exists** to evaluate the intake of high seafood consumers