Hornshaw et al, 1983

Guidelines/Criteria	
Reference:	Hornshaw TC, Aulerich RJ, Johnson HE. 1983. Feeding Great Lakes fish to mink: Effects on mink and accumulation and elimination of PCBs by mink. J Toxicol Environ Health 11:933-946.
In vivo **Study Type**	
Route of Administration	Environmentally contaminated fish or fish product diet (carp, sucker, perch scraps, whitefish racks, and alewife fishmeal)
Species & age of animals	Male and female mink, "environmental study", 13-15 weeks old in first year of the study; 8-10 weeks old in second year
Study Duration	2 year
Type of Mixture	
Binary	no
>2 components	yes
Similar acting or dissimilar	dissimilar action assumed
What Mode of Action was investigated?	Reproduction / Behaviour in environment
Parameters/End points Measured	
Target organs/Critical effects	Reproduction
Pharmacological changes or adverse effects	Adverse - population relevant endpoints
Individual Components	
Characterisation of individual compounds	No
Name, exact chemical name, CAS no.	Contaminated fish (included whole carp, whole white sucker from Lake Huron, yellow perch scraps from northern Lake Erie, lake whitefish racks from Lake Michigan, alewife fishmeal from Lake Michigan
Were dose responses established for individual components?	No
Were no effect levels established?	No
Were doses below the NO(A)ELs investigated?	Presumably not (PCB levels in investigated fish samples are high, as caught in contaminated water)
Mixtures Investigated	
Number of dose levels	First year (mating within the dose groups): 4 males and 12 females were fed a basal diet (13.3 % commercial mink cereal, 16% whole chicken, 30% fish/fish products, 5.3% beef tripe, 2.7% beef liver, 2.7% beef lungs, 2.7% beef trimmings, 2.7% cooked eggs, 24.6% added water), where the type of fish added varied in the dose groups (contaminated fish see above). Control fish consisted of Atlantic cod, haddock and flounder trimmings. 2nd year (females were mated with control male mink): 28 female mink were fed with the standard diet (containing 30% perch scraps for 2 d, and 30% sucker every third day.
How does the mixture make-up compare to individual components? (e.g. low dose) equivalents used?)	not applicable
No. of technical replicates per exposure condition (*in vitro*)	not applicable
No. of animals per dose group (*in vivo*)	16 animals/diet group (4 males and 8 females) and 28 female animals/diet group
Observations/Findings	No effects on growth and furring. Mink fed carp failed to reproduce. Mink fed perch, whitefish and sucker had lower reproductive performance and/or kit survival.
Overall opinion	
(e.g. sufficient numbers of groups investigated, group sizes adequate, observations reproducible, low dose levels used investigated)	The PCB concentration in the investigated fish from the Great Lakes are above No-effect levels of these chemicals. The samples do not represent environmentally or human-relevant exposure levels.