TABLE 2-1

SELECTION OF EXPOSURE PATHWAYS -- Phase 2 Risk Assessment

UPPER HUDSON RIVER

Scenario Timeframe	Source Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	On-Site/ Off-Site	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Fish	Fish	Upper Hudson Fish	Angler	Adult	Ingestion	On-Site	Quant	PCBs have been widely detected in fish.
					Adolescent	Ingestion	On-Site	Quant	
					Child	Ingestion	On-Site	Quant	
	Sediment	Sediment	Banks of Upper Hudson	Recreator	Adult	Ingestion	On-Site	Quant	Recreators may ingest or otherwise come in contact with contaminated river sediment while engaging in activities along the river.
						Dermal	On-Site	Quant	
					Adolescent	Ingestion	On-Site	Quant	
						Dermal	On-Site	Quant	
					Child	Ingestion	On-Site	Quant	
						Dermal	On-Site	Quant	
	River Water	Drinking Water	Upper Hudson River	Resident	Adult	Ingestion	On-Site	Qual	Considered in Phase 1 Risk Assessment and determined to have de minimis risk. Concentrations below the MCL does not pose a risk during occasional exposure, such as during swimming. Not evaluated further in this HHRA.
					Adolescent	Ingestion	On-Site	Qual	
					Child	Ingestion	On-Site	Qual	
		River Water	Upper Hudson River (wading/swimming)	Recreator	Adult	Dermal	On-Site	Quant	Recreators may come in contact with contaminated river water while wading or swimmming.
					Adolescent	Dermal	On-Site	Quant	
					Child	Dermal	On-Site	Quant	
		Outdoor Air	Upper Hudson River (River and near vicinity)	Recreator	Adult	Inhalation	On-Site	Quant	Recreators may inhale volatilized PCBs while engaging in river-related activities.
					Adolescent	Inhalation	On-Site	Quant	
					Child	Inhalation	On-Site	Quant	
				Resident	Adult	Inhalation	On-Site	Quant	Nearby residents may inhale volatilized PCBs outside of their home.
					Adolescent	Inhalation	On-Site	Quant	
					Child	Inhalation	On-Site	Quant	
	Flood Plain Soil	Cattle, home-grown crops, etc.	Flood plain of Upper Hudson	Resident	Adult	Ingestion	On-Site	Qual	Limited data; studies show low PCB uptake in forage crops and non-detect PCB levels in cow's milk in NY. Risks via ingestion of foods other than Hudson River fish likely to be minimal.
					Adolescent	Ingestion	On-Site	Qual	
					Child	Ingestion	On-Site	Qual	
	Other Non-Fish Biota	Turtles, ducks, etc.	Along Upper Hudson River	Resident	Adult	Ingestion	On-Site	Qual	Limited data; ingestion of animals other than Hudson River fish likely to be minimal.
					Adolescent	Ingestion	On-Site	Qual	
					Child	Ingestion	On-Site	Qual	
	Home-grown Crops	Vegetables	Upper Hudson vicinity	Resident	Adult	Ingestion	On-Site	Qual	Limited data; studies show low PCB uptake in forage crops.
					Adolescent	Ingestion	On-Site	Qual	
					Child	Ingestion	On-Site	Qual	
	Beef		Upper Hudson vicinity	Resident	Adult	Ingestion	On-Site	Qual	Limited data; studies show non-detect PCB levels in cow's milk in NY.
					Adolescent	Ingestion	On-Site	Qual	
					Child	Ingestion	On-Site	Qual	
	Dairy Products	Milk, eggs	Upper Hudson vicinity	Resident	Adult	Ingestion	On-Site	Qual	Limited data; studies show non-detect PCB levels in cow's milk in NY.
					Adolescent	Ingestion	On-Site	Qual	
					Child	Ingestion	On-Site	Qual	

TABLE 2-2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
UPPER HUDSON RIVER - Fish

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish

CAS Number	Chemical	(1) Minimum Concentration	Minimum Qualifier	(1) Maximum Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	(2) Rationale for Contaminant Deletion or Selection
1336-36-3	PCBs (3)	0.13	N/A	6.8	N/A	mg/kg wet weight	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	FD, TX, ASL

(1) Minimum/maximum modeled concentration for any modeled species at any Upper Hudson River stretch between 1999-2067 (USEPA, 2000).

(2) Rationale Codes
Selection Reason:
- Infrequent Detection but Associated Historically (HIST)
- Frequent Detection (FD)
- Toxicity Information Available (TX)
- Above Screening Levels (ASL)

Deletion Reason:
- Infrequent Detection (IFD)
- Background Levels (BKG)
- No Toxicity Information (NTX)
- Essential Nutrient (NUT)
- Below Screening Level (BSL)

Definitions:
- N/A = Not Applicable
- SQL = Sample Quantitation Limit
- COPC = Chemical of Potential Concern
- ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
- MCL = Federal Maximum Contaminant Level
- SMCL = Secondary Maximum Contaminant Level
- J = Estimated Value
- C = Carcinogenic
- N = Non-Carcinogenic

(3) Occurrence and distribution of PCBs in fish were modeled, not measured (USEPA, 2000).

TABLE 2-3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
UPPER HUDSON RIVER - Sediment

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection (2)
1336-36-3	PCBs (3)	0.22	N/A	19	N/A	mg/kg	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	FD, TX, ASL

(1) Minimum/maximum modeled concentration at any Upper Hudson River stretch between 1999-2067 (USEPA, 2000).

(2) Rationale Codes
Selection Reason:
- Infrequent Detection but Associated Historically (HIST)
- Frequent Detection (FD)
- Toxicity Information Available (TX)
- Above Screening Levels (ASL)

Deletion Reason:
- Infrequent Detection (IFD)
- Background Levels (BKG)
- No Toxicity Information (NTX)
- Essential Nutrient (NUT)
- Below Screening Level (BSL)

(3) Occurrence and distribution of PCBs in sediment were modeled, not measured (USEPA, 2000).

Definitions:
- N/A = Not Applicable
- SQL = Sample Quantitation Limit
- COPC = Chemical of Potential Concern
- ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
- MCL = Federal Maximum Contaminant Level
- SMCL = Secondary Maximum Contaminant Level
- J = Estimated Value
- C = Carcinogenic
- N = Non-Carcinogenic

TABLE 2-4
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
UPPER HUDSON RIVER - River Water

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection (2)
1336-36-3	PCBs (3)	9.4E-06	N/A	7.5E-05	N/A	mg/L	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	FD, TX, ASL

(1) Minimum/maximum modeled concentration at any Upper Hudson River stretch between 1999-2067 (USEPA, 2000).

(2) Rationale Codes
Selection Reason:
- Infrequent Detection but Associated Historically (HIST)
- Frequent Detection (FD)
- Toxicity Information Available (TX)
- Above Screening Levels (ASL)

Deletion Reason:
- Infrequent Detection (IFD)
- Background Levels (BKG)
- No Toxicity Information (NTX)
- Essential Nutrient (NUT)
- Below Screening Level (BSL)

(3) Occurrence and distribution of PCBs in river water were modeled, not measured (USEPA, 2000).

Definitions:
- N/A = Not Applicable
- SQL = Sample Quantitation Limit
- COPC = Chemical of Potential Concern
- ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
- MCL = Federal Maximum Contaminant Level
- SMCL = Secondary Maximum Contaminant Level
- J = Estimated Value
- C = Carcinogenic
- N = Non-Carcinogenic

TABLE 2-5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
UPPER HUDSON RIVER - Outdoor Air

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Water Vapor

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value (2)	Screening Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection (3)
1336-36-3	PCBs (4)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	FD, TX, ASL

(1) Minimum/maximum concentration not available because PCBs in outdoor air is based on modeled river water concentrations, not measured.

(2) N/A - Refer to supporting information for background discussion.
Background values derived from statistical analysis.

-3 Rationale Codes
Selection Reason:
Infrequent Detection but Associated Historically (HIST)
Frequent Detection (FD)
Toxicity Information Available (TX)
Above Screening Levels (ASL)
Deletion Reason:
Infrequent Detection (IFD)
Background Levels (BKG)
No Toxicity Information (NTX)
Essential Nutrient (NUT)
Below Screening Level (BSL)

(4) Occurrence and distribution of PCBs in outdoor air is based on modeled river water concentrations, not measured (USEPA, 2000).

Definitions:
N/A = Not Applicable
SQL = Sample Quantitation Limit
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
MCL = Federal Maximum Contaminant Level
SMCL = Secondary Maximum Contaminant Level
J = Estimated Value
C = Carcinogenic
N = Non-Carcinogenic

TABLE 2-6
MEDIUM-SPECIFIC MODELED EXPOSURE POINT CONCENTRATION SUMMARY
UPPER HUDSON RIVER FISH - Thompson Island Pool

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish - Thompson Island Pool

Chemical of Potential Concern	Units	Arithmetic Mean (3)	95% UCL of Normal Data	Maximum Concentration (3)	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
PCBs												
in Brown Bullhead	mg/kg wet weight	1.9	**	6.8	N/A	mg/kg wet weight	2.6	Mean-N	Averaged over RME ED	4.5	Mean-N	Averaged over CT ED
in Largemouth Bass	mg/kg wet weight	2.9	**	6.5	N/A	mg/kg wet weight	3.3	Mean-N	Averaged over RME ED	4.6	Mean-N	Averaged over CT ED
in Yellow Perch	mg/kg wet weight	2.7	**	6.3	N/A	mg/kg wet weight	3.2	Mean-N	Averaged over RME ED	4.5	Mean-N	Averaged over CT ED
Species-weighted for adult exposure (1)	mg/kg wet weight	2.4	**	6.6	N/A	mg/kg wet weight	3.8	Mean-N	Averaged over adult RME ED of 22 years	5.2	Mean-N	Averaged over adult CT ED of 6 years
Species-weighted for adolescent exposure (1)	mg/kg wet weight	2.4	**	6.6	N/A	mg/kg wet weight	4.6	Mean-N	Averaged over adolescent RME ED of 12 years	5.7	Mean-N	Averaged over adolescent CT ED of 3 years
Species-weighted for child exposure (1)	mg/kg wet weight	2.4	**	6.6	N/A	mg/kg wet weight	5.2	Mean-N	Averaged over child RME ED of 6 years	5.7	Mean-N	Averaged over child CT ED of 3 years
Species-weighted for chronic exposure (2)	mg/kg wet weight	2.4	**	6.6	N/A	mg/kg wet weight	5.1	Mean-N	Averaged over 7-year chronic ED	based on age group (4)	Mean-N	see text for discussion

Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data (95% UCL-T); Mean of Log-transformed Data (Mean-T); Mean of Normal Data (Mean-N).

** Not applicable because fish data was modeled, not measured. 95% UCLM not calculated (see text).

ED = Exposure Duration

CT = Central Tendency

(1) PCB concentrations for each species were weighted based on species-group intake percentages (Connelly et al., 1992; NYSDOH, 1999) and averaged over the central tendency adult, adolescent, and child exposure durations (6, 3, and 3 years, respectively) to calculate the CT EPCs, and over the RME adult, adolescent, and child exposure durations (22, 12, and 6 years, respectively) to calculate the RME EPCs for cancer risks.

(2) PCB concentrations for each species were weighted based on species-group intake percentages (Connelly et al., 1992; NYSDOH, 1999) and averaged over 7 years to calculate the RME EPC for non-cancer hazards.

(3) Mean/maximum modeled concentration for each species and species-weighted concentration between 1999-2067 (USEPA, 2000).

(4) CT EPC for chronic exposure is based on age group; exposure duration for each age group is already less than 7-years. See text for more discussion.

TABLE 2.7
MEDIUM-SPECIFIC MODELED EXPOSURE POINT CONCENTRATION SUMMARY
UPPER HUDSON RIVER FISH - River Mile 168

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish - River Mile 168

Chemical of Potential Concern	Units	Arithmetic Mean (3)	95% UCL of Normal Data	Maximum Concentration (3)	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
PCBs												
in Brown Bullhead	mg/kg wet weight	1.3	**	4.6	N/A	mg/kg wet weight	1.6	Mean-N	Averaged over RME ED	2.7	Mean-N	Averaged over CT ED
in Largemouth Bass	mg/kg wet weight	0.80	**	2.8	N/A	mg/kg wet weight	0.99	Mean-N	Averaged over RME ED	1.6	Mean-N	Averaged over CT ED
in Yellow Perch	mg/kg wet weight	0.60	**	2.1	N/A	mg/kg wet weight	0.74	Mean-N	Averaged over RME ED	1.2	Mean-N	Averaged over CT ED
Species-weighted for adult exposure (1)	mg/kg wet weight	0.99	**	3.5	N/A	mg/kg wet weight	1.6	Mean-N	Averaged over adult RME ED of 22 years	2.5	Mean-N	Averaged over adult CT ED of 6 years
Species-weighted for adolescent exposure (1)	mg/kg wet weight	0.99	**	3.5	N/A	mg/kg wet weight	2.0	Mean-N	Averaged over adolescent RME ED of 12 years	3.0	Mean-N	Averaged over adolescent CT ED of 3 years
Species-weighted for child exposure (1)	mg/kg wet weight	0.99	**	3.5	N/A	mg/kg wet weight	2.5	Mean-N	Averaged over child RME ED of 6 years	3.0	Mean-N	Averaged over child CT ED of 3 years
Species-weighted for chronic exposure (2)	mg/kg wet weight	0.99	**	3.5	N/A	mg/kg wet weight	2.4	Mean-N	Averaged over 7-year chronic ED	based on age group (4)	Mean-N	see text for discussion

Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data (95% UCL-T); Mean of Log-transformed Data (Mean-T); Mean of Normal Data (Mean-N).

** Not applicable because fish data was modeled, not measured. 95% UCLM not calculated (see text).

ED = Exposure Duration

CT = Central Tendency

(1) PCB concentrations for each species were weighted based on species-group intake percentages (Connelly et al., 1992; NYSDOH, 1999) and averaged over the central tendency adult, adolescent, and child exposure durations (6, 3, and 3 years, respectively) to calculate the CT EPCs, and over the RME adult, adolescent, and child exposure durations (22, 12, and 6 years, respectively) to calculate the RME EPCs for cancer risks.

(2) PCB concentrations for each species were weighted based on species-group intake percentages (Connelly et al., 1992; NYSDOH, 1999) and averaged over 7 years to calculate the RME EPC for non-cancer hazards.

(3) Mean/maximum modeled concentration for each species and species-weighted concentration between 1999-2067 (USEPA, 2000).

(4) CT EPC for chronic exposure is based on age group; exposure duration for each age group is already less than 7-years. See text for more discussion.

TABLE 2-8
MEDIUM-SPECIFIC MODELED EXPOSURE POINT CONCENTRATION SUMMARY
UPPER HUDSON RIVER FISH - River Mile 154

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish - River Mile 154

Chemical of Potential Concern	Units	Arithmetic Mean (3)	95% UCL of Normal Data	Maximum Concentration (3)	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
PCBs												
in Brown Bullhead	mg/kg wet weight	0.49	**	1.9	N/A	mg/kg wet weight	0.64	Mean-N	Averaged over RME ED	1.2	Mean-N	Averaged over CT ED
in Largemouth Bass	mg/kg wet weight	0.35	**	1.3	N/A	mg/kg wet weight	0.44	Mean-N	Averaged over RME ED	0.78	Mean-N	Averaged over CT ED
in Yellow Perch	mg/kg wet weight	0.24	**	0.92	N/A	mg/kg wet weight	0.31	Mean-N	Averaged over RME ED	0.56	Mean-N	Averaged over CT ED
Species-weighted for adult exposure (1)	mg/kg wet weight	0.40	**	1.5	N/A	mg/kg wet weight	0.69	Mean-N	Averaged over adult RME ED of 22 years	1.2	Mean-N	Averaged over adult CT ED of 6 years
Species-weighted for adolescent exposure (1)	mg/kg wet weight	0.40	**	1.5	N/A	mg/kg wet weight	0.93	Mean-N	Averaged over adolescent RME ED of 12 years	1.3	Mean-N	Averaged over adolescent CT ED of 3 years
Species-weighted for child exposure (1)	mg/kg wet weight	0.40	**	1.5	N/A	mg/kg wet weight	1.2	Mean-N	Averaged over child RME ED of 6 years	1.3	Mean-N	Averaged over child CT ED of 3 years
Species-weighted for chronic exposure (2)	mg/kg wet weight	0.40	**	1.5	N/A	mg/kg wet weight	1.1	Mean-N	Averaged over 7-year chronic ED	based on age group (4)	Mean-N	see text for discussion

Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data (95% UCL-T); Mean of Log-transformed Data (Mean-T); Mean of Normal Data (Mean-N).

** Not applicable because fish data was modeled, not measured. 95% UCLM not calculated (see text).

ED = Exposure Duration

CT = Central Tendency

(1) PCB concentrations for each species were weighted based on species-group intake percentages (Connelly et al., 1992; NYSDOH, 1999) and averaged over the central tendency adult, adolescent, and child exposure durations (6, 3, and 3 years, respectively) to calculate the CT EPCs, and over the RME adult, adolescent, and child exposure durations (22, 12, and 6 years, respectively) to calculate the RME EPCs for cancer risks.

(2) PCB concentrations for each species were weighted based on species-group intake percentages (Connelly et al., 1992; NYSDOH, 1999) and averaged over 7 years to calculate the RME EPC for non-cancer hazards.

(3) Mean/maximum modeled concentration for each species and species-weighted concentration between 1999-2067 (USEPA, 2000).

(4) CT EPC for chronic exposure is based on age group; exposure duration for each age group is already less than 7-years. See text for more discussion.

TABLE 2-9
MEDIUM-SPECIFIC MODELED EXPOSURE POINT CONCENTRATION SUMMARY
UPPER HUDSON RIVER SEDIMENT

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson

Chemical of Potential Concern	Units	Arithmetic Mean (1)	95% UCL of Normal Data	Maximum Concentration (1)	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure (2)			Central Tendency (2)		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
PCBs	mg/kg	1.9	**	7.9	N/A	mg/kg						
Adult							3.8	Mean-N	Averaged over RME ED	6.6	Mean-N	Averaged over CT ED
Adolescent							5.2	Mean-N	Averaged over RME ED	7.2	Mean-N	Averaged over CT ED
Child							6.4	Mean-N	Averaged over RME ED	7.2	Mean-N	Averaged over CT ED

Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data (95% UCL-T); Mean of Log-transformed Data (Mean-T); Mean of Normal Data (Mean-N).

** Not applicable because sediment data was modeled, not measured (see text).

(1) Mean/maximum of segment-averaged modeled concentration 1999-2067 (USEPA, 2000).

(2) EPC values were averaged over 23 yrs RME and 5 yrs CT for adults; 12 yrs RME and 3 yrs CT for adolescents; 6 yrs RME and 3 yrs CT for children; for a total of 41 yrs RME and 11 yrs CT exposure.

TABLE 2-10
MEDIUM-SPECIFIC MODELED EXPOSURE POINT CONCENTRATION SUMMARY
UPPER HUDSON RIVER WATER

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River

Chemical of Potential Concern	Units	Arithmetic Mean (1)	95% UCL of Normal Data	Maximum Concentration (1)	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure (2)			Central Tendency (2)		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
PCBs	mg/L	2.5E-05	**	5.6E-05	N/A	mg/L						
Adult							3.4E-05	Mean-N	Averaged over RME ED	4.6E-05	Mean-N	Averaged over CT ED
Adolescent							4.0E-05	Mean-N	Averaged over RME ED	4.8E-05	Mean-N	Averaged over CT ED
Child							4.5E-05	Mean-N	Averaged over RME ED	4.8E-05	Mean-N	Averaged over CT ED

Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data (95% UCL-T); Mean of Log-transformed Data (Mean-T); Mean of Normal Data (Mean-N).

** Not applicable because river water data was modeled, not measured.

(1) Mean/maximum of segment-averaged modeled concentration 1999-2067 (USEPA, 2000).

(2) EPC values were averaged over 23 yrs RME and 5 yrs CT for adults; 12 yrs RME and 3 yrs CT for adolescents; 6 yrs RME and 3 yrs CT for children; for a total of 41 yrs RME and 11 yrs CT exposure.

TABLE 2-11
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
UPPER HUDSON RIVER AIR

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
PCBs	mg/m³	**	**	**	N/A	mg/m³	1.7E-05	Used high-end empirical transfer coefficient estimate	High-end estimate	1.0E-06	Used midpoint between modeled concentration and empirical transfer coefficient estimate	Central estimate

Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data (95% UCL-T); Mean of Log-transformed Data (Mean-T); Mean of Normal Data (Mean-N).

** Not applicable because outdoor air concentrations based on modeled river water concentrations (refer to Table A-2) and water to air transfer coefficient.

TABLE 2-12a

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER FISH - Adult Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	C_{fish}-C	PCB Concentration in Fish (Cancer)**	mg/kg wet weight	2.0	See Tables 2-6 through 2-8	3.0	See Tables 2-6 through 2-8	Average Daily Intake (mg/kg-day) =
	C_{fish}-NC	PCB Concentration in Fish (Non-cancer)**	mg/kg wet weight	2.9	See Tables 2-6 through 2-8	3.0	See Tables 2-6 through 2-8	C_{fish} x IR_{fish} x (1 - Loss) X FS x EF x ED x CF x 1/BW x 1/AT
	IR_{fish}	Ingestion Rate of Fish	grams/day	31.9	90th percentile value, based on 1991 NY Angler survey.	4.0	50th percentile value, based on 1991 NY Angler survey.	
	Loss	Cooking Loss	g/g	0	Assumes 100% PCBs remains in fish.	0.2	Assumes 20% PCBs in fish is lost through cooking.	
	FS	Fraction from Source	unitless	1	Assumes 100% fish ingested is from Upper Hudson.	1	Assumes 100% fish ingested is from Upper Hudson.	
	EF	Exposure Frequency	days/year	365	Fish ingestion rate already averaged over one year.	365	Fish ingestion rate already averaged over one year.	
	ED	Exposure Duration (Cancer)	years	22	derived from 95th percentile value, based on 1991 NY Angler and 1990 US Census data.	6	derived from 50th percentile value, based on 1991 NY Angler and 1990 US Census data.	
	ED	Exposure Duration (Noncancer)	years	7	see text	6	derived from 50th percentile value, based on 1991 NY Angler and 1990 US Census data.	
	CF	Conversion Factor	kg/g	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	70	Mean adult body weight, males and females (USEPA, 1989b).	70	Mean adult body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	2,555	ED (years) x 365 days/year.	2,190	ED (years) x 365 days/year.	

** Species-weighted PCB concentration averaged over river location.

TABLE 2-12b

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER FISH - Adolescent Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Adolescent

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	C_{fish}-C	PCB Concentration in Fish (Cancer)**	mg/kg wet weight	2.5	See Tables 2-6 through 2-8	3.3	See Tables 2-6 through 2-8	Average Daily Intake (mg/kg-day) =
	C_{fish}-NC	PCB Concentration in Fish (Non-cancer)**	mg/kg wet weight	2.9	See Tables 2-6 through 2-8	3.3	See Tables 2-6 through 2-8	C_{fish} x IR_{fish} x (1 - Loss) X FS x EF x ED x CF x 1/BW x 1/AT
	IR_{fish}	Ingestion Rate of Fish	grams/day	21.3	2/3 of RME adult ingestion rate.	2.7	2/3 of RME adult ingestion rate.	
	Loss	Cooking Loss	g/g	0	Assumes 100% PCBs remains in fish.	0.2	Assumes 20% PCBs in fish is lost through cooking.	
	FS	Fraction from Source	unitless	1	Assumes 100% fish ingested is from Mid-Hudson.	1	Assumes 100% fish ingested is from Mid-Hudson.	
	EF	Exposure Frequency	days/year	365	Fish ingestion rate already averaged over one year.	365	Fish ingestion rate already averaged over one year.	
	ED	Exposure Duration (Cancer)	years	12	derived from 95th percentile value, based on 1991 NY Angler and 1990 US Census data.	3	derived from 50th percentile value, based on 1991 NY Angler and 1990 US Census data.	
	ED	Exposure Duration (Noncancer)	years	7	see text	3	derived from 50th percentile value, based on 1991 NY Angler and 1990 US Census data.	
	CF	Conversion Factor	kg/g	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	43	Mean adolescent body weight, males and females (USEPA, 1989b).	43	Mean adolescent body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	2,555	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

** Species-weighted PCB concentration averaged over river location.

TABLE 2-12c

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER FISH - Child Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	C_{fish}	PCB Concentration in Fish**	mg/kg wet weight	3.0	See Tables 2-6 through 2-8	3.3	See Tables 2-6 through 2-8	Average Daily Intake (mg/kg-day) =
	IR_{fish}	Ingestion Rate of Fish	grams/day	10.6	1/3 of RME adult ingestion rate.	1.3	1/3 of CT adult ingestion rate.	C_{fish} x IR_{fish} x (1 - Loss) X FS x EF x ED x CF x 1/BW x 1/AT
	Loss	Cooking Loss	g/g	0	Assumes 100% PCBs remains in fish.	0.2	Assumes 20% PCBs in fish is lost through cooking.	
	FS	Fraction from Source	unitless	1	Assumes 100% fish ingested is from Mid-Hudson.	1	Assumes 100% fish ingested is from Mid-Hudson.	
	EF	Exposure Frequency	days/year	365	Fish ingestion rate already averaged over one year.	365	Fish ingestion rate already averaged over one year.	
	ED	Exposure Duration	years	6	derived from 95th percentile value, based on 1991 NY Angler and 1990 US Census data.	3	derived from 50th percentile value, based on 1991 NY Angler and 1990 US Census data.	
	CF	Conversion Factor	kg/g	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	15	Mean child body weight (USEPA, 1989b).	15	Mean child body weight (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	2,190	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

** Species-weighted PCB concentration averaged over river location for both cancer and non-cancer calculations.

TABLE 2-13a

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER SEDIMENT - Adult Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	$C_{sediment}$	Chemical Concentration in Sediment	mg/kg	3.8	See Table 2-9	6.6	See Table 2-9	Average Daily Intake (mg/kg-day) =
	$IR_{sediment}$	Ingestion Rate of Sediment	mg/day	50	Mean adult soil ingestion rate (USEPA, 1997f).	50	Mean adult soil ingestion rate (USEPA, 1997f).	$C_{sediment}$ x $IR_{sediment}$ x FS x EF x ED x CF x 1/BW x 1/AT
	FS	Fraction from Source	unitless	1	Assumes 100% sediment exposure is from Upper Hudson.	1	Assumes 100% sediment exposure is from Upper Hudson.	
	EF	Exposure Frequency	days/year	13	1 day/week, 3 months/yr	7	Approximately 50% of RME	
	ED	Exposure Duration	years	23	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	5	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	kg/mg	1.00E-06	--	1.00E-06	--	
	BW	Body Weight	kg	70	Mean adult body weight, males and females (USEPA, 1989b).	70	Mean adult body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	8,395	ED (years) x 365 days/year.	1,825	ED (years) x 365 days/year.	
Dermal	$C_{sediment}$	Chemical Concentration in Sediment	mg/kg	3.8	See Table 2-9	6.6	See Table 2-9	Average Daily Intake (mg/kg-day) =
	DA	Dermal Absorption	unitless	0.14	Based on absorption of PCBs from soil in monkeys (Wester, 1993).	0.14	Based on absorption of PCBs from soil in monkeys (Wester, 1993).	$C_{sediment}$ x DA x AF x SA x EF x ED x CF x 1/BW x 1/AT
	AF	Adherance Factor	mg/cm^2	0.3	50% value for adult (reed gatherer) : hands, lower legs, forearms, and face (USEPA, 1999f).	0.3	50% value for adult (reed gatherer) : hands, lower legs, forearms, and face (USEPA, 1999f).	
	SA		cm^2/event	6,073	Ave male/female 50th percentile: hands, lower legs, forearms, feet, and face (USEPA, 1997f).	6,073	Ave male/female 50th percentile: hands, lower legs, forearms, feet, and face (USEPA, 1997f).	
	EF	Exposure Frequency	event/year	13	1 day/week, 3 months/yr	7	Approx. 50% of RME	
	ED	Exposure Duration	years	23	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	5	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	kg/mg	1.00E-06	--	1.00E-06	--	
	BW	Body Weight	kg	70	Mean adult body weight, males and females (USEPA, 1989b).	70	Mean adult body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	8,395	ED (years) x 365 days/year.	1,825	ED (years) x 365 days/year.	

TABLE 2-13b

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER SEDIMENT - Avid Adult Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	$C_{sediment}$	Chemical Concentration in Sediment	mg/kg	3.8	See Table 2-9	6.6	See Table 2-9	Average Daily Intake (mg/kg-day) =
	$IR_{sediment}$	Ingestion Rate of Sediment	mg/day	50	Mean adult soil ingestion rate (USEPA, 1997f).	50	Mean adult soil ingestion rate (USEPA, 1997f).	$C_{sediment}$ x $IR_{sediment}$ x FS x EF x ED x CF x 1/BW x 1/AT
	FS	Fraction from Source	unitless	1	Assumes 100% sediment exposure is from Upper Hudson.	1	Assumes 100% sediment exposure is from Upper Hudson.	
	EF	Exposure Frequency	days/year	104	Adopts same exposure frequency as Rogers Island Assessment.	52	Approximately 50% of RME	
	ED	Exposure Duration	years	23	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	5	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	kg/mg	1.00E-06	--	1.00E-06	--	
	BW	Body Weight	kg	70	Mean adult body weight, males and females (USEPA, 1989b).	70	Mean adult body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	8,395	ED (years) x 365 days/year.	1,825	ED (years) x 365 days/year.	
Dermal	$C_{sediment}$	Chemical Concentration in Sediment	mg/kg	3.8	See Table 2-9	6.6	See Table 2-9	Average Daily Intake (mg/kg-day) =
	DA	Dermal Absorption	unitless	0.14	Based on absorption of PCBs from soil in monkeys (Wester, 1993).	0.14	Based on absorption of PCBs from soil in monkeys (Wester, 1993).	$C_{sediment}$ x DA x AF x SA x EF x ED x CF x 1/BW x 1/AT
	AF	Adherance Factor	mg/cm^2	0.3	50% value for adult (reed gatherer) : hands, lower legs, forearms, and face (USEPA, 1999f).	0.3	50% value for adult (reed gatherer) : hands, lower legs, forearms, and face (USEPA, 1999f).	
	SA		cm^2/event	6,073	Ave male/female 50th percentile: hands, lower legs, forearms, feet, and face (USEPA, 1997f).	6,073	Ave male/female 50th percentile: hands, lower legs, forearms, feet, and face (USEPA, 1997f).	
	EF	Exposure Frequency	event/year	104	Adopts same exposure frequency as Rogers Island Assessment.	52	Approximately 50% of RME	
	ED	Exposure Duration	years	23	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	5	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	kg/mg	1.00E-06	--	1.00E-06	--	
	BW	Body Weight	kg	70	Mean adult body weight, males and females (USEPA, 1989b).	70	Mean adult body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	8,395	ED (years) x 365 days/year.	1,825	ED (years) x 365 days/year.	

TABLE 2-14a

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER SEDIMENT - Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	$C_{sediment}$	Chemical Concentration in Sediment	mg/kg	5.2	See Table 2-9	7.2	See Table 2-9	Average Daily Intake (mg/kg-day) =
	$IR_{sediment}$	Ingestion Rate of Sediment	mg/day	50	Mean soil ingestion rate (USEPA, 1997f).	50	Mean soil ingestion rate (USEPA, 1997f).	$C_{sediment}$ x $IR_{sediment}$ x FS x EF x ED x CF x 1/BW x 1/AT
	FS	Fraction from Source	unitless	1	Assumes 100% sediment exposure is from Upper Hudson.	1	Assumes 100% sediment exposure is from Upper Hudson.	
	EF	Exposure Frequency	days/year	39	3 days/week, 3 months/yr	20	Approximately 50% of RME	
	ED	Exposure Duration	years	12	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	kg/mg	1.00E-06	--	1.00E-06	--	
	BW	Body Weight	kg	43	Mean adolescent body weight, males and females (USEPA, 1989b).	43	Mean adolescent body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	4,380	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	
Dermal	$C_{sediment}$	Chemical Concentration in Sediment	mg/kg	5.2	See Table 2-9	7.2	See Table 2-9	Average Daily Intake (mg/kg-day) =
	DA	Dermal Absorption	unitless	0.14	Based on absorption of PCBs from soil in monkeys (Wester, 1993).	0.14	Based on absorption of PCBs from soil in monkeys (Wester, 1993).	$C_{sediment}$ x DA x AF x SA x EF x ED x CF x 1/BW x 1/AT
	AF	Adherance Factor	mg/cm^2	0.25	Midpoint of adult and child AF: Hands, lower legs, forearms, and face (USEPA, 1999f).	0.25	Midpoint of adult and child AF: Hands, lower legs, forearms, and face (USEPA, 1999f).	
	SA		cm^2/event	4,263	Ave male/female 50th percentile age 12: hands, lower legs, forearms, feet, and face (USEPA, 1997f).	4,263	Ave male/female 50th percentile age 12: hands, lower legs, forearms, feet, and face (USEPA, 1997f).	
	EF	Exposure Frequency	event/year	39	3 days/week, 3 months/yr	20	Approximately 50% of RME	
	ED	Exposure Duration	years	12	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	kg/mg	1.00E-06	--	1.00E-06	--	
	BW	Body Weight	kg	43	Mean adolescent body weight, males and females (USEPA, 1989b).	43	Mean adolescent body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	4,380	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

TABLE 2-14b

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER SEDIMENT - Avid Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Adolescent

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	$C_{sediment}$	Chemical Concentration in Sediment	mg/kg	5.2	See Table 2-9	7.2	See Table 2-9	Average Daily Intake (mg/kg-day) =
	$IR_{sediment}$	Ingestion Rate of Sediment	mg/day	50	Mean soil ingestion rate (USEPA, 1997f).	50	Mean soil ingestion rate (USEPA, 1997f).	$C_{sediment}$ x $IR_{sediment}$ x FS x EF x ED x CF x 1/BW x 1/AT
	FS	Fraction from Source	unitless	1	Assumes 100% sediment exposure is from Upper Hudson.	1	Assumes 100% sediment exposure is from Upper Hudson.	
	EF	Exposure Frequency	days/year	104	Adopts same exposure frequency as Rogers Island Assessment.	52	Approximately 50% of RME	
	ED	Exposure Duration	years	12	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	kg/mg	1.00E-06	--	1.00E-06	--	
	BW	Body Weight	kg	43	Mean adolescent body weight, males and females (USEPA, 1989b).	43	Mean adolescent body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	4,380	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	
Dermal	$C_{sediment}$	Chemical Concentration in Sediment	mg/kg	5.2	See Table 2-9	7.2	See Table 2-9	Average Daily Intake (mg/kg-day) =
	DA	Dermal Absorption	unitless	0.14	Based on absorption of PCBs from soil in monkeys (Wester, 1993).	0.14	Based on absorption of PCBs from soil in monkeys (Wester, 1993).	$C_{sediment}$ x DA x AF x SA x EF x ED x CF x 1/BW x 1/AT
	AF	Adherance Factor	mg/cm^2	0.25	Midpoint of adult and child AF: Hands, lower legs, forearms, and face (USEPA, 1999f).	0.25	Midpoint of adult and child AF: Hands, lower legs, forearms, and face (USEPA, 1999f).	
	SA		cm^2/event	4,263	Ave male/female 50th percentile age 12: hands, lower legs, forearms, feet, and face (USEPA, 1997f).	4,263	Ave male/female 50th percentile age 12: hands, lower legs, forearms, feet, and face (USEPA, 1997f).	
	EF	Exposure Frequency	event/year	104	Adopts same exposure frequency as Rogers Island Assessment.	52	Approximately 50% of RME	
	ED	Exposure Duration	years	12	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	kg/mg	1.00E-06	--	1.00E-06	--	
	BW	Body Weight	kg	43	Mean adolescent body weight, males and females (USEPA, 1989b).	43	Mean adolescent body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	4,380	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

TABLE 2-15a

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER SEDIMENT - Child Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	$C_{sediment}$	Chemical Concentration in Sediment	mg/kg	6.4	See Table 2-9	7.2	See Table 2-9	Average Daily Intake (mg/kg-day) =
	$IR_{sediment}$	Ingestion Rate of Sediment	mg/day	100	Mean child soil ingestion rate (USEPA, 1997f).	100	Mean child soil ingestion rate (USEPA, 1997f).	$C_{sediment}$ x $IR_{sediment}$ x FS x EF x ED x CF x 1/BW x 1/AT
	FS	Fraction from Source	unitless	1	Assumes 100% sediment exposure is from Upper Hudson.	1	Assumes 100% sediment exposure is from Upper Hudson.	
	EF	Exposure Frequency	days/year	13	1 day/week, 3 months/yr	7	Approx. 50% of RME	
	ED	Exposure Duration	years	6	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	kg/mg	1.00E-06	--	1.00E-06	--	
	BW	Body Weight	kg	15	Mean child body weight, males and females (USEPA, 1989b).	15	Mean child body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	2,190	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	
Dermal	$C_{sediment}$	Chemical Concentration in Sediment	mg/kg	6.4	See Table 2-9	7.2	See Table 2-9	Average Daily Intake (mg/kg-day) =
	DA	Dermal Absorption	unitless	0.14	Based on absorption of PCBs from soil in monkeys (Wester, 1993).	0.14	Based on absorption of PCBs from soil in monkeys (Wester, 1993).	$C_{sediment}$ x DA x AF x SA x EF x ED x CF x 1/BW x 1/AT
	AF	Adherance Factor	mg/cm^2	0.2	50% value for children (moist soil) : hands, lower legs, forearms, and face (USEPA, 1999f).	0.2	50% value for children (moist soil) : hands, lower legs, forearms, and face (USEPA, 1999f).	
	SA		cm^2/event	2,792	50th percentile ave for male/female child age 6: hands, lower legs, forearms, feet, and face (USEPA, 1997f).	2,792	50th percentile ave for male/female child age 6: hands, lower legs, forearms, feet, and face (USEPA, 1997f).	
	EF	Exposure Frequency	event/year	13	1 day/week, 3 months/yr	7	Approx. 50% of RME	
	ED	Exposure Duration	years	6	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	kg/mg	1.00E-06	--	1.00E-06	--	
	BW	Body Weight	kg	15	Mean child body weight, males and females (USEPA, 1989b).	15	Mean child body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	2,190	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

TABLE 2-15b

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER SEDIMENT - Avid Child Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	$C_{sediment}$	Chemical Concentration in Sediment	mg/kg	6.4	See Table 2-9	7.2	See Table 2-9	Average Daily Intake (mg/kg-day) =
	$IR_{sediment}$	Ingestion Rate of Sediment	mg/day	100	Mean child soil ingestion rate (USEPA, 1997f).	100	Mean child soil ingestion rate (USEPA, 1997f).	$C_{sediment}$ x $IR_{sediment}$ x FS x EF x ED x CF x 1/BW x 1/AT
	FS	Fraction from Source	unitless	1	Assumes 100% sediment exposure is from Upper Hudson.	1	Assumes 100% sediment exposure is from Upper Hudson.	
	EF	Exposure Frequency	days/year	104	Adopts same exposure frequency as Rogers Island Assessment.	52	Approximately 50% of RME	
	ED	Exposure Duration	years	6	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	kg/mg	1.00E-06	--	1.00E-06	--	
	BW	Body Weight	kg	15	Mean child body weight, males and females (USEPA, 1989b).	15	Mean child body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	2,190	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	
Dermal	$C_{sediment}$	Chemical Concentration in Sediment	mg/kg	6.4	See Table 2-9	7.2	See Table 2-9	Average Daily Intake (mg/kg-day) =
	DA	Dermal Absorption	unitless	0.14	Based on absorption of PCBs from soil in monkeys (Wester, 1993).	0.14	Based on absorption of PCBs from soil in monkeys (Wester, 1993).	$C_{sediment}$ x DA x AF x SA x EF x ED x CF x 1/BW x 1/AT
	AF	Adherance Factor	mg/cm^2	0.2	50% value for children (moist soil) : hands, lower legs, forearms, and face (USEPA, 1999f).	0.2	50% value for children (moist soil) : hands, lower legs, forearms, and face (USEPA, 1999f).	
	SA		cm^2/event	2,792	50th percentile ave for male/female child age 6: hands, lower legs, forearms, feet, and face (USEPA, 1997f).	2,792	50th percentile ave for male/female child age 6: hands, lower legs, forearms, feet, and face (USEPA, 1997f).	
	EF	Exposure Frequency	event/year	104	Adopts same exposure frequency as Rogers Island Assessment.	52	Approximately 50% of RME	
	ED	Exposure Duration	years	6	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	kg/mg	1.00E-06	--	1.00E-06	--	
	BW	Body Weight	kg	15	Mean child body weight, males and females (USEPA, 1989b).	15	Mean child body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	2,190	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

TABLE 2-16a

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER WATER - Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Dermal	C_{water}	Chemical Concentration in River Water	mg/L	3.4E-05	See Table 2-10	4.6E-05	See Table 2-10	Average Daily Intake (mg/kg-day) =
	Kp	Dermal Permeability Constant (for PCBs)	cm/hour	0.48	Hexachlorobiphenyl (USEPA, 1999f)	0.48	Hexachlorobiphenyl (USEPA, 1999f)	C_{water} x Kp x SA x DE x EF x ED x CF x 1/BW x 1/AT
	SA	Surface Area	cm^2	18,150	Full body contact (USEPA, 1997f)	18,150	Full body contact (USEPA, 1997f)	
	DE	Dermal Exposure Time	hours/day	2.6	National average for swimming (USEPA, 1989b).	2.6	National average for swimming (USEPA, 1989b).	
	EF	Exposure Frequency	days/year	13	1 day/week, 3 months/yr	7	Approx. 50% of RME	
	ED	Exposure Duration	years	23	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	5	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	L/cm^3	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	70	Mean adult body weight, males and females (USEPA, 1989b).	70	Mean adult body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	8,395	ED (years) x 365 days/year.	1,825	ED (years) x 365 days/year.	

TABLE 2-16b

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER WATER - Avid Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Dermal	C_{water}	Chemical Concentration in River Water	mg/L	3.4E-05	See Table 2-10	4.6E-05	See Table 2-10	Average Daily Intake (mg/kg-day) =
	Kp	Dermal Permeability Constant (for PCBs)	cm/hour	0.48	Hexachlorobiphenyl (USEPA, 1999f)	0.48	Hexachlorobiphenyl (USEPA, 1999f)	C_{water} x Kp x SA x DE x EF x ED x CF x 1/BW x 1/AT
	SA	Surface Area	cm^2	18,150	Full body contact (USEPA, 1997f)	18,150	Full body contact (USEPA, 1997f)	
	DE	Dermal Exposure Time	hours/day	2.6	National average for swimming (USEPA, 1989b).	2.6	National average for swimming (USEPA, 1989b).	
	EF	Exposure Frequency	days/year	104	Adopts same exposure frequency as Rogers Island Assessment.	52	Approximately 50% of RME	
	ED	Exposure Duration	years	23	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	5	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	L/cm^3	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	70	Mean adult body weight, males and females (USEPA, 1989b).	70	Mean adult body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	8,395	ED (years) x 365 days/year.	1,825	ED (years) x 365 days/year.	

TABLE 2-17a

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER WATER - Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Dermal	C_{water}	Chemical Concentration in River Water	mg/L	4.0E-05	See Table 2-10	4.8E-05	See Table 2-10	Average Daily Intake (mg/kg-day) =
	Kp	Dermal Permeability Constant (for PCBs)	cm/hour	0.48	Hexachlorobiphenyl (USEPA, 1999f)	0.48	Hexachlorobiphenyl (USEPA, 1999f)	C_{water} x Kp x SA x DE x EF x ED x CF x 1/BW x 1/AT
	SA	Surface Area	cm^2	13,100	Full body contact (USEPA, 1997f)	13,100	Full body contact (USEPA, 1997f)	
	DE	Dermal Exposure Time	hours/day	2.6	National average for swimming (USEPA, 1989b).	2.6	National average for swimming (USEPA, 1989b).	
	EF	Exposure Frequency	days/year	39	3 days/week, 3 months/yr	20	Approx. 50% of RME	
	ED	Exposure Duration	years	12	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	L/cm^3	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	43	Mean adolescent body weight, males and females (USEPA, 1989b).	43	Mean adolescent body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	4,380	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

TABLE 2-17b

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER WATER - Avid Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Adolescent

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Dermal	C_{water}	Chemical Concentration in River Water	mg/L	4.0E-05	See Table 2-10	4.8E-05	See Table 2-10	Average Daily Intake (mg/kg-day) =
	Kp	Dermal Permeability Constant (for PCBs)	cm/hour	0.48	Hexachlorobiphenyl (USEPA, 1999f)	0.48	Hexachlorobiphenyl (USEPA, 1999f)	C_{water} x Kp x SA x DE x EF x ED x CF x 1/BW x 1/AT
	SA	Surface Area	cm^2	13,100	Full body contact (USEPA, 1997f)	13,100	Full body contact (USEPA, 1997f)	
	DE	Dermal Exposure Time	hours/day	2.6	National average for swimming (USEPA, 1989b).	2.6	National average for swimming (USEPA, 1989b).	
	EF	Exposure Frequency	days/year	104	Adopts same exposure frequency as Rogers Island Assessment.	52	Approximately 50% of RME	
	ED	Exposure Duration	years	12	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	L/cm^3	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	43	Mean adolescent body weight, males and females (USEPA, 1989b).	43	Mean adolescent body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	4,380	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

TABLE 2-18a

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER WATER - Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Dermal	C_{water}	Chemical Concentration in River Water	mg/L	4.5E-05	See Table 2-10	4.8E-05	See Table 2-10	Average Daily Intake (mg/kg-day) =
	Kp	Dermal Permeability Constant (for PCBs)	cm/hour	0.48	Hexachlorobiphenyl (USEPA, 1999f)	0.48	Hexachlorobiphenyl (USEPA, 1999f)	C_{water} x Kp x SA x DE x EF x ED x CF x 1/BW x 1/AT
	SA	Surface Area	cm^2	6,880	Full body contact (USEPA, 1997f)	6,880	Full body contact (USEPA, 1997f)	
	DE	Dermal Exposure Time	hours/day	2.6	National average for swimming (USEPA, 1989b).	2.6	National average for swimming (USEPA, 1989b).	
	EF	Exposure Frequency	days/year	13	1 day/week, 3 months/yr	7	Approx. 50% of RME	
	ED	Exposure Duration	years	6	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	L/cm^3	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	15	Mean child body weight, males and females (USEPA, 1989b).	15	Mean child body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	2,190	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

TABLE 2-18b

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER WATER - Avid Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Dermal	C_{water}	Chemical Concentration in River Water	mg/L	4.5E-05	See Table 2-10	4.8E-05	See Table 2-10	Average Daily Intake (mg/kg-day) =
	Kp	Dermal Permeability Constant (for PCBs)	cm/hour	0.48	Hexachlorobiphenyl (USEPA, 1999f)	0.48	Hexachlorobiphenyl (USEPA, 1999f)	C_{water} x Kp x SA x DE x EF x ED x CF x 1/BW x 1/AT
	SA	Surface Area	cm^2	6,880	Full body contact (USEPA, 1997f)	6,880	Full body contact (USEPA, 1997f)	
	DE	Dermal Exposure Time	hours/day	2.6	National average for swimming (USEPA, 1989b).	2.6	National average for swimming (USEPA, 1989b).	
	EF	Exposure Frequency	days/year	104	Adopts same exposure frequency as Rogers Island Assessment.	52	Approximately 50% of RME	
	ED	Exposure Duration	years	6	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	L/cm^3	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	15	Mean child body weight, males and females (USEPA, 1989b).	15	Mean child body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	2,190	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

TABLE 2-19

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER AIR - Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Inhalation	C_{air}	Chemical Concentration in Air	µg/m³	1.7E-02	See Table 2-11	1.0E-03	See Table 2-11	Average Daily Intake (mg/kg-day) =
	IR_{air}	Inhalation Rate of Air	m³/hour	1.6	Mean inhalation rate for adults during short-term, moderate activities (USEPA, 1997f).	1.6	Mean inhalation rate for adults during short-term, moderate activities (USEPA, 1997f).	C_{air} x IR_{air} x DE x EF x ED x CF x 1/BW x 1/AT
	DE	Duration of Event	hours/day	4	Site-specific assumption	4	Site-specific assumption	
	EF	Exposure Frequency	days/year	13	1 day/week, 3 months/yr	7	Approx. 50% of RME	
	ED	Exposure Duration	years	23	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	5	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	mg/µg	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	70	Mean adult body weight, males and females (USEPA, 1989b).	70	Mean adult body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	8,395	ED (years) x 365 days/year.	1,825	ED (years) x 365 days/year.	

TABLE 2-20

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER AIR - Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Inhalation	C_{air}	Chemical Concentration in Air	µg/m³	1.7E-02	See Table 2-11	1.0E-03	See Table 2-11	Average Daily Intake (mg/kg-day) =
	IR_{air}	Inhalation Rate of Air	m³/hour	1.6	Mean inhalation rate for adults during short-term, moderate activities (USEPA, 1997f).	1.6	Mean inhalation rate for adults during short-term, moderate activities (USEPA, 1997f).	C_{air} x IR_{air} x DE x EF x ED x CF x 1/BW x 1/AT
	DE	Duration of Event	hours/day	4	Site-specific assumption	4	Site-specific assumption	
	EF	Exposure Frequency	days/year	39	3 days/week, 3 months/yr	20	Approx. 50% of RME	
	ED	Exposure Duration	years	12	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	mg/µg	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	43	Mean adolescent body weight, males and females (USEPA, 1989b).	43	Mean adolescent body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	4,380	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

TABLE 2-21

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER AIR - Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Inhalation	C_{air}	Chemical Concentration in Air	µg/m³	1.7E-02	See Table 2-11	1.0E-03	See Table 2-11	Average Daily Intake (mg/kg-day) =
	IR_{air}	Inhalation Rate of Air	m³/hour	1.2	Mean inhalation rate for children during short-term, moderate activities (USEPA, 1997f).	1.2	Mean inhalation rate for children during short-term, moderate activities (USEPA, 1997f).	C_{air} x IR_{air} x DE x EF x ED x CF x 1/BW x 1/AT
	DE	Duration of Event	hours/day	4	Site-specific assumption	4	Site-specific assumption	
	EF	Exposure Frequency	days/year	13	1 day/week, 3 months/yr	7	Approx. 50% of RME	
	ED	Exposure Duration	years	6	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	mg/µg	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	15	Mean child body weight, males and females (USEPA, 1989b).	15	Mean child body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	2,190	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

TABLE 2-22

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER AIR - Adult Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Inhalation	C_{air}	Chemical Concentration in Air	µg/m³	1.7E-02	See Table 2-11	1.0E-03	See Table 2-11	Average Daily Intake (mg/kg-day) =
	IR_{air}	Inhalation Rate of Air	m³/day	20	RME inhalation rate (USEPA, 1991b).	20	RME inhalation rate (USEPA, 1991b).	C_{air} x IR_{air} x EF x ED x CF x 1/BW x 1/AT
	EF	Exposure Frequency	days/year	350	USEPA (1991b)	350	USEPA (1991b)	
	ED	Exposure Duration	years	23	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	5	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	mg/µg	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	70	Mean adult body weight, males and females (USEPA, 1989b).	70	Mean adult body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	8,395	ED (years) x 365 days/year.	1,825	ED (years) x 365 days/year.	

TABLE 2-23

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER AIR - Adolescent Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Adolescent

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Inhalation	C_{air}	Chemical Concentration in Air	µg/m³	1.7E-02	See Table 2-11	1.0E-03	See Table 2-11	Average Daily Intake (mg/kg-day) =
	IR_{air}	Inhalation Rate of Air	m³/day	13.5	Mean long-term inhalation rate for adolescents, aged 12-14 (USEPA, 1997f).	13.5	Mean long-term inhalation rate for adolescents, aged 12-14 (USEPA, 1997f).	C_{air} x IR_{air} x EF x ED x CF x 1/BW x 1/AT
	EF	Exposure Frequency	days/year	350	USEPA (1991b)	350	USEPA (1991b)	
	ED	Exposure Duration	years	12	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	mg/µg	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	43	Mean adolescent body weight, males and females (USEPA, 1989b).	43	Mean adolescent body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	4,380	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

TABLE 2-24

VALUES USED FOR DAILY INTAKE CALCULATIONS

UPPER HUDSON RIVER AIR - Child Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Inhalation	C_{air}	Chemical Concentration in Air	µg/m³	1.7E-02	See Table 2-11	1.0E-03	See Table 2-11	Average Daily Intake (mg/kg-day) =
	IR_{air}	Inhalation Rate of Air	m³/day	8.3	Mean long-term inhalation rate for children aged 3-5 years (USEPA, 1997f).	8.3	Mean long-term inhalation rate for children aged 3-5 years (USEPA, 1997f).	C_{air} x IR_{air} x EF x ED x CF x 1/BW x 1/AT
	EF	Exposure Frequency	days/year	350	USEPA (1991b)	350	USEPA (1991b)	
	ED	Exposure Duration	years	6	derived from 95th percentile of residence duration in 5 Upper Hudson Counties (see text)	3	derived from 50th percentile of residence duration in 5 Upper Hudson Counties (see text)	
	CF	Conversion Factor	mg/µg	1.00E-03	--	1.00E-03	--	
	BW	Body Weight	kg	15	Mean child body weight, males and females (USEPA, 1989b).	15	Mean child body weight, males and females (USEPA, 1989b).	
	AT-C	Averaging Time (Cancer)	days	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	25,550	70-year lifetime exposure x 365 d/yr (USEPA, 1989b).	
	AT-NC	Averaging Time (Noncancer)	days	2,190	ED (years) x 365 days/year.	1,095	ED (years) x 365 days/year.	

Table 3-1
Summary of Fish Ingestion Rates
1991 New York Angler Survey [(a)]

Percentiles	Ingestion Rate (meals/yr)	Ingestion Rate (g/day)
10	1	0.62
20	2	1.2
30	3	1.9
40	5	3.1
50	6.4	4.0
60	10	6.2
70	15	9.3
80	28	17.4
90	51	31.9
95	102	63.4
98	292	182
99	393	244
Arith. Mean	28	17.3

Notes:

[(a)] *Distribution percentiles from the 1991 New York Angler Survey (Connelly et al., 1992)*

Table 3-2
Fish Ingestion Rate Summary for Several Surveys

Study	Average Daily Fish Consumption (g/day)	
	Central Estimate[a]	High End Estimate[b]
1991 New York angler survey (Connelly et al., 1992)		
All flowing waterbodies	4.0	31.9
EPA Exposure Factors Handbook (USEPA, 1997f)		
Recreational freshwater anglers	8	25
1993 Maine Angler Survey (Ebert et al., 1993)		
All flowing waterbodies		
Assuming fish shared with household	0.99	12
Assuming only angler consumes fish	2.5	27
1992 Lake Ontario Diary Study (Connelly et al., 1996)		
Sport-caught fish	2.2	17.9
Fish – all sources	14.1	42.3
1989 Michigan Survey (West et al., 1989 as cited in USEPA, 1997f)		
Recreational fish intake	10.9	38.7

Notes:

[a] *Central estimate represents mean intake for value from the EPA Exposure Factors Handbook (1997f), and 50th percentile values from all other studies listed.*

[b] *High end estimate is 90th percentile for 1991 New York Angler survey and 95th percentile for all others.*

Table 3-3
Summary of 1991 New York Angler Survey
Fish Consumption by Species Reported

Water Body Type/ Species Group	Number Reporting Eating Fish	Total Caught	Total Eaten	Average Number Eaten [b]	Standard Deviation [a]	Maximum Number Eaten	Percent of Hudson Species	Percent of All Fish
Flowing								
Bass	68	1,842	584	8.6	19.2	145	38%	14%
Walleye	36	333	134	3.7	4.2	20	9%	3%
Bullhead	23	1,092	558	24.3	61.9	300	36%	14%
Carp	2	[b]	90	45.0	42.4	75	6%	2%
Eel	4	38	38	9.5	10.6	25	2%	0.9%
Perch	17	833	139	8.2	12.5	51	9%	3%
Subtotal		4,138	1,543				100%	38%
Salmon	35	559	193	5.5	5.3	25		5%
Trout	130	3,099	1,230	9.5	15.7	133		30%
Catfish	11	158	113	10.3	15.5	50		3%
Other	45	2,871	1,025	22.8	50.1	200		25%
Total All Fish		10,825	4,104					100%
Not Flowing								
Bass	154	3,370	1,032	6.7	12.0	100	29%	14%
Walleye	112	2,292	1,054	9.4	14.2	75	30%	14%
Bullhead	53	1,200	634	12.0	21.5	100	18%	8%
Carp	4	7	29	7.3	6.7	14	0.8%	0.4%
Eel	2	2	3	1.5	0.7	2	0.1%	0.04%
Perch	51	2,289	816	16.0	32.4	200	23%	11%
Subtotal		9,160	3,568				100%	47%
Salmon	55	538	480	8.7	15.2	80		6%
Trout	152	2,428	1,400	9.2	18.3	150		18%
Catfish	10	46	46	4.6	6.9	20		0.6%
Other	94	5,976	2,125	22.6	58.1	403		28%
Total All Fish		18,148	7,619					100%
Not Reported								
Bass	128	4,006	1,110	8.7	17.0	100	42%	17%
Walleye	34	389	206	6.1	8.8	40	8%	3%
Bullhead	55	2,374	1,099	20.0	43.2	225	41%	16%
Carp	5	16	11	2.2	1.6	5	0.4%	0.2%
Eel	5	9	13	2.6	2.5	7	0.5%	0.2%
Perch	24	338	222	9.3	21.7	100	8%	3%
Subtotal		7,132	2,661				100%	40%
Salmon	14	139	120	8.6	7.3	20		2%
Trout	148	2,836	1,319	8.9	16.8	157		20%
Catfish	4	40	17	4.3	2.8	7		0.3%
Other	104	7,731	2,559	24.6	72.2	630		38%
Total All Fish		17,878	6,676					100%

Notes:

[a] *Mean and Standard Deviation are over number of anglers reporting they ate particular species.*
[b] *Number caught not reported.*

Modeled PCB concentration estimates are available for species in ***Bold***
Source: Connelly et al. (1992)

Table 3-4
Species-Group Intake Percentages
Using 1991 New York Angler Survey Data

Group 1		Group 2		Group 3	
Brown bullhead	36%	Bass	38%	Perch	9%
Carp	6%	Walleye	9%		
Eel	2%				
Species Group Totals	44%		47%		9%

Table 3-5
Summary of PCB Losses from Fish due to Cooking

Study	Type of Fish	Location	Preparation Method	Cooking Method	Percent PCB Loss from Fish
Armbruster *et al*., 1987	Striped Bass	Long Island Sound, NY	trimmed, skin-off	Baked 31-40 minutes	21
				Broiled 15-20 minutes	11
				Pan-fried, about 10 minutes	15
				Microwaved, 5-10 minutes	19
				Poached, 5-10 minutes	12
				Boiled, 10-20 minutes	(+4%)
Armbruster *et al*., 1989	Bluefish	Long Island Sound	trimmed, skin-off	various	8
Moya *et al*., 1998	Winter Flounder		filleted and sectioned	Deep fried - 1 minute	48
				Pan fried - 1 min/side	(+15%)
				Broiled - 2 minutes	(+17%)
Puffer and Gossett, 1983	White Croaker	Orange County, CA	trimmed, skin-off	Pan Fried	28
		Santa Monica, CA	trimmed, skin-off		65
Salama *et al*., 1998	Bluefish	Massachusetts	filleted	Smoked	65
				Microwaved	60
				Charbroiled (skin on)	47
				Charbroiled (skin off)	37
				Pan-fried	27
				Baked	39
Schecter *et al*., 1998	Catfish	New York	filleted	Broiled - approx 30 minutes	47
Skea *et al*., 1979	Smallmouth Bass	Lake Ontario	trimmed	Deep-fried for 3-4 minutes	74
			untrimmed	Baked	16
	Brown Trout		untrimmed	Smoked	27
			trimmed	Broiled for 15 minutes	0
Smith *et al*., 1973	Chinook Salmon	Lake Michigan	cleaned steaks	Baked or Poached	2-8
			cleaned steaks	Baked-in-Bag	11-16
Zabik *et al*., 1979	Lake trout		trimmed, skin-off	Broiled	53
			trimmed, skin-off	Baked	34
			trimmed, skin-off	Microwaved	26
			trimmed, skin-off	Baked	50
			trimmed, skin-on	Baked	40

Table 3-5 (cont.)
Summary of PCB Losses from Fish due to Cooking

Study	Type of Fish	Location	Preparation Method	Cooking Method	Percent PCB Loss from Fish
Zabik *et al*., 1995a	Chinook Salmon	Lakes Huron/Michigan	trimmed, skin-on	Baked	37
		Lakes Huron/Michigan	trimmed, skin- off	Baked	37
		Lakes Huron/Michigan	trimmed, skin-on	Charbroiled	45
		Lakes Huron/Michigan	trimmed, skin- off	Charbroiled	48
	Carp	Lakes Erie and Huron	trimmed, skin-on	Pan-fried	31
		Lakes Erie and Huron	trimmed, skin- off	Pan-fried	32
		Lakes Erie and Huron	trimmed, skin-on	Deep-fried	32
		Lakes Erie and Huron	trimmed, skin-off	Deep-fried	26
		Lake Erie	trimmed, skin-on or off	Deep fried or Pan fried	22
		Lake Huron	trimmed, skin-on or off	Deep fried or Pan fried	44
Zabik *et al*., 1995b	Walleye	Lakes Erie, Huron and Michigan	filleted - skin on	Baked	19
			filleted - skin on	Charbroiled	25
		Lake Erie	filleted - skin on	Baked or Charbroiled	17
		Lake Huron	filleted - skin on	Baked or Charbroiled	24
		Lake Michigan	filleted - skin on	Baked or Charbroiled	25
	White Bass	Lake Erie	filleted - skin on	Pan fried	18
		Lake Huron	filleted - skin on	Pan fried	44
Zabik *et al*., 1996	Lake Trout (lean)	Lakes Huron, Michigan and Ontario	filleted - skin off	Baked	13
			filleted - skin off	Charbroiled	11
		Lake Michigan	filleted - skin off	Baked	10
			filleted - skin off	Charbroiled	7
			filleted - skin off	Saltboiled	10
			filleted - skin on	Smoked	41
	Fat Trout (Siscowets)	Lake Superior	filleted - skin off	Baked	18
			filleted - skin off	Charbroiled	32
			filleted - skin off	Saltboiled	19
		Lake Huron	filleted - skin on	Smoked	37

Note: PCB losses for Armbuster (1987) and Zabik et al. (1995a, b, and 1996) were calculated from values in the studies for mass of PCB in fish before and after cooking.

Table 3-6
Joint Distribution Over Current Age and Age at Which Individual Started Fishing

Age		Fraction of Individuals Among	
Started Fishing	**Now**	**All Anglers Currently Living in the Upper Hudson Region**	**Individuals in the Upper Hudson Region Who Started Fishing Recently**
10	10	16.8%	72.3%
	20	16.8%	
	30	16.8%	
	40	16.8%	
	50	8.6%	
	60	5.5%	
	70	0.9%	
	80	0.2%	
20	20	2.6%	11.2%
	30	2.6%	
	40	2.5%	
	50	0.8%	
	60	0.7%	
	70	0.3%	
	80	0.1%	
30	30	1.9%	8.3%
	40	1.9%	
	50	0.6%	
	60	0.2%	
	70	0.1%	
	80	0.0%	
40	40	1.3%	5.5%
	50	0.6%	
	60	0.3%	
	70	0.1%	
	80	0.0%	
50	50	0.4%	1.8%
	60	0.4%	
	70	0.0%	
	80	0.0%	
60	60	0.2%	0.7%
	70	0.1%	
	80	0.0%	
70	70	0.0%	0.1%
	80	0.0%	
80	80	0.0%	0.1%

Source: 1991 New York Angler Survey, (Connelly, et al., 1992).

Table 3-7

Time Until Individual Stops Fishing

Age		Probability that Individual Will Stop Fishing in Exactly This Many Years						
Started Fishing	**Now**	**10**	**20**	**30**	**40**	**50**	**60**	**70**
10	10	0%	0%	0%	48%	19%	27%	6%
	20	0%	0%	48%	19%	27%	6%	
	30	0%	48%	19%	27%	6%		
	40	48%	19%	27%	6%			
	50	36%	53%	11%				
	60	83%	17%					
	70	100%						
20	20	0%	4%	64%	4%	17%	10%	
	30	4%	64%	4%	17%	10%		
	40	67%	5%	18%	10%			
	50	14%	55%	31%				
	60	64%	36%					
	70	100%						
30	30	0%	69%	19%	9%	3%		
	40	69%	19%	9%	3%			
	50	62%	29%	10%				
	60	75%	25%					
	70	100%						
40	40	53%	20%	22%	4%			
	50	43%	48%	10%				
	60	83%	17%					
	70	100%						
50	50	0%	93%	7%				
	60	93%	7%					
	70	100%						
60	60	67%	33%					
	70	100%						
70	70	100%						

Source: 1991 New York Angler Survey, (Connelly, et al., 1992).

Table 3-8
County-to-County In-Migration Data for Albany County, NY

	No Move	Move In										Total from Outside Region[a]
		Total	From Abroad	Domestic								
				Total	Outside Region[a]	Inside Region[a]						
Age Group						Total	Albany	From Rensselaer	From Saratoga	From Warren	From Washington	
5 to 9	8,638	9,002	228	8,774	2,111	6,663	5,795	536	262	18	52	2,339
10 to 14	10,128	6,482	226	6,256	1,604	4,652	4,253	304	86	0	9	1,830
15 to 19	11,284	9,642	236	9,406	4,958	4,448	3,713	428	177	61	69	5,194
20 to 24	8,012	19,788	428	19,360	11,187	8,173	6,188	995	705	165	120	11,615
25 to 29	5,515	18,568	640	17,928	6,825	11,103	9,111	1366	526	83	17	7,465
30 to 34	8,196	17,658	558	17,100	5,388	11,712	10,256	840	558	23	35	5,946
35 to 44	24,243	20,419	407	20,012	5,818	14,194	12,533	980	592	53	36	6,225
45 to 54	20,091	7,999	277	7,722	2,185	5,537	4,866	458	208	5	0	2,462
55 to 64	20,764	4,837	97	4,740	1,225	3,515	3,099	222	170	24	0	1,322
65 to 74	19,380	4,189	78	4,111	982	3,129	2,867	179	74	0	9	1,060
75 to 84	10,929	2,914	22	2,892	644	2,248	1,984	190	49	0	25	666
85+	3,670	1,746	0	1,746	355	1,391	1,227	117	41	0	6	355

Notes:

a. The Upper Hudson Region consists of Albany, Rensselaer, Saratoga, Warren, and Washington Counties.

Source: 1990 U.S. Census.

Table 3-9
County-to-County In-Migration Data for Rensselaer County, NY

	No Move	Move In										Total from Outside Region[a]
		Total	From Abroad	Domestic								
				Total	Outside Region[a]	Inside Region[a]						
						Total	From					
Age Group							Albany	Rensselaer	Saratoga	Warren	Washington	
5 to 9	5,577	4,769	80	4,689	965	3,724	656	2,902	131	0	35	1,045
10 to 14	6,155	3,608	73	3,535	686	2,849	438	2,283	101	0	27	759
15 to 19	6,820	5,126	213	4,913	2,301	2,612	368	2,084	128	14	18	2,514
20 to 24	4,911	8,940	436	8,504	3,670	4,834	776	3,777	215	21	45	4,106
25 to 29	3,763	8,867	435	8,432	2,144	6,288	1211	4,713	295	18	51	2,579
30 to 34	5,236	7,976	221	7,755	1,935	5,820	1419	4,076	273	37	15	2,156
35 to 44	14,632	9,049	130	8,919	1,994	6,925	1503	5,030	297	20	75	2,124
45 to 54	10,930	3,214	40	3,174	599	2,575	495	1,951	85	13	31	639
55 to 64	11,355	2,125	46	2,079	482	1,597	264	1,303	24	0	6	528
65 to 74	10,010	1,712	5	1,707	320	1,387	216	1,101	62	0	8	325
75 to 84	5,613	1,146	7	1,139	154	985	205	730	41	6	3	161
85+	1,522	520	0	520	99	421	75	328	12	0	6	99

Notes:

a. The Upper Hudson Region consists of Albany, Rensselaer, Saratoga, Warren, and Washington Counties.

Source: 1990 U.S. Census.

Table 3-10
County-to-County In-Migration Data for Saratoga County, NY

	No Move	Move In										Total from Outside Region[a]
		Total	From Abroad	Domestic								
				Total	Outside Region[a]	Inside Region[a]						
						Total	From					
Age Group							Albany	Rensselaer	Saratoga	Warren	Washington	
5 to 9	3,149	5,752	80	5,672	675	4,997	474	293	3,885	198	147	755
10 to 14	2,652	3,728	73	3,655	611	3,044	287	140	2,403	119	95	684
15 to 19	2,155	6,006	213	5,793	2,305	3,488	185	171	2,964	113	55	2,518
20 to 24	3,303	9,955	436	9,519	3,685	5,834	443	229	4,792	229	141	4,121
25 to 29	4,791	12,284	435	11,849	1,203	10,646	1230	580	8,130	413	293	1,638
30 to 34	4,614	10,539	221	10,318	1,372	8,946	1375	419	6,639	342	171	1,593
35 to 44	6,540	11,469	130	11,339	1,478	9,861	1179	622	7,450	381	229	1,608
45 to 54	2,804	4,089	40	4,049	484	3,565	426	111	2,826	112	90	524
55 to 64	1,558	2,452	46	2,406	228	2,178	347	53	1,630	75	73	274
65 to 74	978	1,868	5	1,863	228	1,635	187	35	1,257	103	53	233
75 to 84	577	997	7	990	235	755	52	34	581	50	38	242
85+	248	506	0	506	100	406	57	6	314	14	15	100

Notes:

a. The Upper Hudson Region consists of Albany, Rensselaer, Saratoga, Warren, and Washington Counties.

Source: 1990 U.S. Census.

Table 3-11
County-to-County In-Migration Data for Warren County, NY

	No Move	Move In										Total from Outside Region[a]
		Total	From Abroad	Domestic								
				Total	Outside Region[a]	Inside Region[a]						
						Total	From					
Age Group							Albany	Rensselaer	Saratoga	Warren	Washington	
5 to 9	1,760	2,429	44	2,385	680	1,705	35	0	184	1,333	153	724
10 to 14	2,109	1,879	32	1,847	482	1,365	19	33	180	1,020	113	514
15 to 19	2,646	1,765	32	1,733	671	1,062	6	20	136	828	72	703
20 to 24	1,550	2,538	57	2,481	611	1,870	13	2	155	1,479	221	668
25 to 29	1,187	3,392	30	3,362	1,136	2,226	97	19	223	1,637	250	1,166
30 to 34	1,635	3,247	47	3,200	967	2,233	113	0	190	1,757	173	1,014
35 to 44	4,833	4,111	83	4,028	1,215	2,813	42	48	326	2,153	244	1,298
45 to 54	4,521	1,700	31	1,669	571	1,098	13	14	93	878	100	602
55 to 64	4,078	1,263	10	1,253	527	726	45	8	71	507	95	537
65 to 74	3,709	1,128	17	1,111	429	682	3	12	81	540	46	446
75 to 84	2,149	540	0	540	144	396	7	0	57	313	19	144
85+	677	348	0	348	75	273	0	0	39	208	26	75

Notes:

a. The Upper Hudson Region consists of Albany, Rensselaer, Saratoga, Warren, and Washington Counties.

Source: 1990 U.S. Census.

Table 3-12
County-to-County In-Migration Data for Washington County, NY

	No Move	Move In										Total from Outside Region[a]
		Total	From Abroad	Domestic								
				Total	Outside Region[a]	Inside Region[a]						
						Total	From					
Age Group							Albany	Rensselaer	Saratoga	Warren	Washington	
5 to 9	2,438	1,878	3	1,875	483	1,392	14	48	148	193	989	486
10 to 14	2,544	1,541	0	1,541	442	1,099	8	34	92	162	803	442
15 to 19	2,756	1,483	30	1,453	372	1,081	0	26	83	99	873	402
20 to 24	1,731	2,638	12	2,626	824	1,802	6	58	148	187	1403	836
25 to 29	1,464	3,595	32	3,563	1,336	2,227	96	70	133	324	1604	1,368
30 to 34	2,093	3,159	68	3,091	1,161	1,930	75	77	267	265	1246	1,229
35 to 44	5,534	3,233	6	3,227	1,118	2,109	45	80	227	355	1402	1,124
45 to 54	4,350	1,538	2	1,536	432	1,104	21	49	132	134	768	434
55 to 64	4,313	953	2	951	285	666	3	25	74	116	448	287
65 to 74	3,824	749	0	749	254	495	2	25	40	47	381	254
75 to 84	1,822	492	2	490	112	378	0	6	47	54	271	114
85+	656	228	0	228	90	138	0	0	26	26	86	90

Notes:

a. The Upper Hudson Region consists of Albany, Rensselaer, Saratoga, Warren, and Washington Counties.

Source: 1990 U.S. Census.

Table 3-13
County-to-County In-Migration Data for The Upper Hudson Region[a]

	No Move	Move In										Total from Outside Region[a]
		Total	From Abroad	Domestic								
				Total	Outside Region[a]	Inside Region[a]						
						Total	From					
Age Group							Albany	Rensselaer	Saratoga	Warren	Washington	
5 to 9	21,562	23,830	435	23,395	4,914	18,481	6,974	3,779	4,610	1,742	1,376	5,349
10 to 14	23,588	17,238	404	16,834	3,825	13,009	5,005	2,794	2,862	1,301	1,047	4,229
15 to 19	25,661	24,022	724	23,298	10,607	12,691	4,272	2,729	3,488	1,115	1,087	11,331
20 to 24	19,507	43,859	1,369	42,490	19,977	22,513	7,426	5,061	6,015	2,081	1,930	21,346
25 to 29	16,720	46,706	1,572	45,134	12,644	32,490	11,745	6,748	9,307	2,475	2,215	14,216
30 to 34	21,774	42,579	1,115	41,464	10,823	30,641	13,238	5,412	7,927	2,424	1,640	11,938
35 to 44	55,782	48,281	756	47,525	11,623	35,902	15,302	6,760	8,892	2,962	1,986	12,379
45 to 54	42,696	18,540	390	18,150	4,271	13,879	5,821	2,583	3,344	1,142	989	4,661
55 to 64	42,068	11,630	201	11,429	2,747	8,682	3,758	1,611	1,969	722	622	2,948
65 to 74	37,901	9,646	105	9,541	2,213	7,328	3,275	1,352	1,514	690	497	2,318
75 to 84	21,090	6,089	38	6,051	1,289	4,762	2,248	960	775	423	356	1,327
85+	6,773	3,348	0	3,348	719	2,629	1,359	451	432	248	139	719

Notes:

a. The Upper Hudson Region consists of Albany, Rensselaer, Saratoga, Warren, and Washington Counties.

Source: 1990 U.S. Census.

Table 3-14
Computation of 1-Year Move Probabilities for the Upper Hudson Region

Age Group (k)		$In_{1985\text{-}90,k}$[a]	$Start_{1985\text{-}90,k}$[b]	$Start_{1985\text{-}90,k+1}$[c]	$Out_{1985\text{-}90,k}$[d]	Probability of Moving in a 5-year Period[e]	$p_{k,1}$[f]
5 to 9	(1)	5,349	21,562	23,588	3,323	12.3%	2.5%
10 to 14	(2)	4,229	23,588	25,661	2,156	7.8%	1.6%
15 to 19	(3)	11,331	25,661	19,507	17,485	47.3%	9.5%
20 to 24	(4)	21,346	19,507	16,720	24,133	59.1%	11.8%
25 to 29	(5)	14,216	16,720	21,774	9,162	29.6%	5.9%
30 to 34	(6)	11,938	21,774	27,891[g]	5,821	17.3%	3.5%
35 to 44	(7)	12,379	55,782	42,696	25,465	37.4%	7.5%
45 to 54	(8)	4,661	42,696	42,068	5,289	11.2%	2.2%
55 to 64	(9)	2,948	42,068	37,901	7,115	15.8%	3.2%
65 to 74	(10)	2,318	37,901	21,090	19,129	47.6%	9.5%
75 to 84	(11)	1,327	21,090	6,773	15,644	69.8%	14.0%
85+	(12)	719	6,773	NA[h]	7,492		100%[i]

Notes:

a. *Taken from the column labeled, "Total from Outside Region" in Table 3-13.*

b. *Taken from the column labeled, "No Move" in Table 3-13.*

c. *Set equal to the value of $Start_{1985\text{-}90,k}$ in the preceding row.*

d. $Out_{1985\text{-}90,k} = (Start_{1985\text{-}90,k} - Start_{1985\text{-}90,k+1}) + In_{1985\text{-}90,k}$

e. *Set equal to* $\frac{Out_{1985-90,k}}{Start_{1985-90,k} + In_{1985-90,k}}$.

f. *Set equal to 1/5 ´ the probability of moving in a 5-year period.*

g. *The value in this cell is 1/2 the value listed for $Start_{1985\text{-}90,7}$ to make $Start_{1985\text{-}90,6}$ and $Start_{1985\text{-}90,7}$ comparable. The adjustment addresses the fact that Age Group 7 represents 10 years (ages 35 to 44), whereas Age Group 6 represents 5 years (ages 30 to 34).*

h. *Since Age Group 12 (ages 85+) is the last age group, there is no value for $Start_{1985\text{-}90,13}$.*

i. *Assumes no exposure after age 85. This assumption has no effect on the estimated risk since it is assumed that individuals stop fishing by age 80.*

Table 3-15
Annual Probability That Individual Will Leave Region[a]

Current Age	Annual Probability of Leaving Upper Hudson Region
10-14	1.6%
15-19	9.5%
20-24	11.8%
25-29	5.9%
30-34	3.5%
35-44	7.5%
45-54	2.2%
55-64	3.2%
65-74	9.5%
75-84	14.0%
85+	100%

Notes:

a. From $P_{k,1}$ in.Table 3-14.

Table 3-16
Age-Specific Body Weight Distributions

Age (Years)	Gender	Body Weight (kg)			
		Arithmetic Mean[a]	Arithmetic Std Deviation[a]	Geometric Mean	Geometric Standard Deviation
1	both	11.8	1.4	11.72	1.13
2	both	13.6	1.6	13.51	1.12
3	both	15.7	1.7	15.61	1.11
4	both	17.8	2.3	17.65	1.14
5	both	20.1	2.8	19.91	1.15
6	both	23.1	3.5	22.84	1.16
7	both	25.1	3.8	24.82	1.16
8	both	28.4	5.2	27.94	1.20
9	both	31.3	5.0	30.91	1.17
10	both	37.0	7.5	36.26	1.22
11	both	41.3	10.5	40.03	1.28
12	both	44.9	10.0	43.83	1.25
13	both	49.5	10.5	48.42	1.23
14	both	56.6	10.3	55.69	1.20
15	both	60.5	9.7	59.74	1.17
16	both	67.7	11.6	66.73	1.19
17	both	67.0	11.5	66.03	1.19
>18	both	71.0	15.9	69.28	1.25
>18	male	78.7	13.5	77.57	1.19
>18	female	65.4	15.3	63.68	1.26

Notes:

a. Source: Finley et al. (1994), Table 2.

TABLE 4-1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

UPPER HUDSON RIVER

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Oral to Dermal Adjustment Factor	Adjusted Dermal RfD	Units	Primary Target Organ	Combined Uncertainty/Modifying Factors	Sources of RfD: Target Organ	Dates of RfD: Target Organ (1) (MM/DD/YY)
Aroclor 1254	Chronic	2.00E-05 (2)	mg/kg-d	--	--	--	LOAEL	300	IRIS	6/1/97
Aroclor 1016		7.00E-05 (3)	mg/kg-d	--	--	--	NOAEL	100	IRIS	6/1/97

N/A = Not Applicable

(1) IRIS value from most recent updated PCB file.

(2) Oral RfD for Aroclor 1254; there is no RfD available for total PCBs. PCBs in fish are considered to be most like Aroclor 1254.

(3) Oral RfD for Aroclor 1016; there is no RfD available for total PCBs. PCBs in sediment and water samples are considered to be most like Aroclor 1016.

TABLE 4-2

NON-CANCER TOXICITY DATA -- INHALATION

UPPER HUDSON RIVER

Chemical of Potential Concern	Chronic/ Subchronic	Value Inhalation RfC	Units	Adjusted Inhalation RfD	Units	Primary Target Organ	Combined Uncertainty/Modifying Factors	Sources of RfC:RfD: Target Organ	Dates (1) (MM/DD/YY)
PCBs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	6/1/97

N/A = Not Applicable

(1) Most recent updated PCB file in IRIS and HEAST (1997) were reviewed.

TABLE 4-3

CANCER TOXICITY DATA -- ORAL/DERMAL

UPPER HUDSON RIVER

Chemical of Potential Concern	Oral Cancer Slope Factor	Oral to Dermal Adjustment Factor	Adjusted Dermal Cancer Slope Factor	Units	Weight of Evidence/ Cancer Guideline Description	Source Target Organ	Date (1) (MM/DD/YY)
PCBs	1 (2)	--	--	$(mg/kg-d)^{-1}$	B2	IRIS	6/1/97
	2 (3)	--	--	$(mg/kg-d)^{-1}$	B2	IRIS	6/1/97
	0.3 (4)	--	--	$(mg/kg-d)^{-1}$	B2	IRIS	6/1/97
	0.4 (5)	--	--	$(mg/kg-d)^{-1}$	B2	IRIS	6/1/97

IRIS = Integrated Risk Information System

HEAST= Health Effects Assessment Summary Tables

EPA Group:

A - Human carcinogen

B1 - Probable human carcinogen - indicates that limited human data are available

B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen

E - Evidence of noncarcinogenicity

Weight of Evidence:

Known/Likely

Cannot be Determined

Not Likely

(1) IRIS value from most recent updated PCB file.

(2) Central estimate slope factor for exposures to PCBs via ingestion of fish, ingestion of sediments, and dermal contact (if dermal absorption fraction is applied) with sediments.

(3) Upper-bound slope factor for exposures to PCBs via ingestion of fish, ingestion of sediments, and dermal contact (if dermal absorption fraction is applied) with sediments.

(4) Central estimate slope factor for exposures to PCBs via dermal contact (if no absorption factor is applied) with water soluble congeners in river water and inhalation of evaporated congeners in air.

(5) Upper-bound slope factor for exposures to PCBs via dermal contact (if no absorption factor is applied) with water soluble congeners in river water and inhalation of evaporated congeners in air.

TABLE 4-4

CANCER TOXICITY DATA -- INHALATION

UPPER HUDSON RIVER

Chemical of Potential Concern	Unit Risk	Units	Adjustment	Inhalation Cancer Slope Factor	Units	Weight of Evidence/ Cancer Guideline Description	Source	Date (1) (MM/DD/YY)
PCBs	N/A	N/A	--	0.3 (2)	$(mg/kg\text{-}d)^{-1}$	B2	IRIS	6/1/97
	N/A	N/A	--	0.4 (3)	$(mg/kg\text{-}d)^{-1}$	B2	IRIS	6/1/97

IRIS = Integrated Risk Information System

HEAST= Health Effects Assessment Summary Tables

Weight of Evidence:

Known/Likely

Cannot be Determined

Not Likely

EPA Group:

A - Human carcinogen

B1 - Probable human carcinogen - indicates that limited human data are available

B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen

E - Evidence of noncarcinogenicity

(1) IRIS value from most recent updated PCB file.

(2) Central estimate slope factor for exposures to PCBs via dermal contact (if no absorption factor is applied) with river water and inhalation of air.

(3) Upper-bound slope factor for exposures to PCBs via dermal contact (if no absorption factor is applied) with river water and inhalation of air.

Table 4-5
Toxic Equivalency Factors (TEFs) for Dioxin-Like PCBs

IUPAC Number	Structure	1994 WHO/IPCS TEFs (Ahlborg *et al.*, 1994)	1998 WHO/IPCS TEFs (Van den Berg *et al.*, 1998)
Non-ortho PCBs			
77	3,3',4,4'-TCB	0.0005	0.0001
81	3,4,4',5-TCB	Not evaluated	0.0001
126	3,3',4,4',5-PeCB	0.1	0.1
169	3,3',4,4',5,5'-HxCB	0.01	0.01
Mono-ortho PCBs			
105	2,3,3',4,4'-PeCB	0.0001	0.0001
114	2,3,4,4',5-PeCB	0.0005	0.0005
118	2,3',4,4',5-PeCB	0.0001	0.0001
123	2',3,4,4',5-PeCB	0.0001	0.0001
156	2,3,3',4,4',5-HxCB	0.0005	0.0005
157	2,3,3',4,4',5'-HxCB	0.0005	0.0005
167	2,3',4,4',5,5'-HxCB	0.00001	0.00001
189	2,3,3',4,4',5,5'-HpCB	0.0001	0.0001
Diortho PCBs			
170	2,2',3,3',4,4',5-HpCB	0.0001	Withdrawn
180	2,2',3,4,4',5,5'-HpCB	0.00001	Withdrawn

TABLE 5-1a-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER FISH - Adult Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	2.9	mg/kg wt weight	2.9	mg/kg wt weight	M	1.3E-03	mg/kg-day	2.0E-05	mg/kg-day	N/A	N/A	65
												Total Hazard Index Across All Exposure Routes/Pathways	65

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-1a-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER FISH - Adult Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	3.0	mg/kg wt weight	3.0	mg/kg wt weight	M	1.3E-04	mg/kg-day	2.0E-05	mg/kg-day	N/A	N/A	6.7
												Total Hazard Index Across All Exposure Routes/Pathways	6.7

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-1b-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER FISH - Adolescent Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	2.9	mg/kg wt weight	2.9	mg/kg wt weight	M	1.4E-03	mg/kg-day	2.0E-05	mg/kg-day	N/A	N/A	71
												Total Hazard Index Across All Exposure Routes/Pathways	71

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-1b-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER FISH - Adolescent Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	3.3	mg/kg wt weight	3.3	mg/kg wt weight	M	1.7E-04	mg/kg-day	2.0E-05	mg/kg-day	N/A	N/A	8.4
												Total Hazard Index Across All Exposure Routes/Pathways	8.4

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-1c-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER FISH - Child Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	3.0	mg/kg wt weight	3.0	mg/kg wt weight	M	2.1E-03	mg/kg-day	2.0E-05	mg/kg-day	N/A	N/A	104
												Total Hazard Index Across All Exposure Routes/Pathways	104

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-1c-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER FISH - Child Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	3.3	mg/kg wt weight	3.3	mg/kg wt weight	M	2.3E-04	mg/kg-day	2.0E-05	mg/kg-day	N/A	N/A	12
												Total Hazard Index Across All Exposure Routes/Pathways	12

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-2a-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Adult Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	3.8	mg/kg	3.8	mg/kg	M	9.7E-08	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.0014
Dermal	PCBs	3.8	mg/kg	3.8	mg/kg	M	5.0E-07	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.0071
												Total Hazard Index Across All Exposure Routes/Pathways	0.0085

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-2a-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Adult Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	6.6	mg/kg	6.6	mg/kg	M	9.1E-08	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.0013
Dermal	PCBs	6.6	mg/kg	6.6	mg/kg	M	4.6E-07	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.0066
												Total Hazard Index Across All Exposure Routes/Pathways	0.0079

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-2b-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Avid Adult Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	3.8	mg/kg	3.8	mg/kg	M	7.8E-07	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.011
Dermal	PCBs	3.8	mg/kg	3.8	mg/kg	M	4.0E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.057
												Total Hazard Index Across All Exposure Routes/Pathways	0.068

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-2b-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Avid Adult Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	6.6	mg/kg	6.6	mg/kg	M	6.7E-07	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.010
Dermal	PCBs	6.6	mg/kg	6.6	mg/kg	M	3.4E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.049
												Total Hazard Index Across All Exposure Routes/Pathways	0.059

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-3a-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	5.2	mg/kg	5.2	mg/kg	M	6.5E-07	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.0092
Dermal	PCBs	5.2	mg/kg	5.2	mg/kg	M	1.9E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.028
												Total Hazard Index Across All Exposure Routes/Pathways	0.037

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-3a-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	7.2	mg/kg	7.2	mg/kg	M	4.6E-07	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.0066
Dermal	PCBs	7.2	mg/kg	7.2	mg/kg	M	1.4E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.020
												Total Hazard Index Across All Exposure Routes/Pathways	0.026

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-3b-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Avid Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	5.2	mg/kg	5.2	mg/kg	M	1.7E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.025
Dermal	PCBs	5.2	mg/kg	5.2	mg/kg	M	5.1E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.074
												Total Hazard Index Across All Exposure Routes/Pathways	0.10

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-3b-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Avid Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	7.2	mg/kg	7.2	mg/kg	M	1.2E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.017
Dermal	PCBs	7.2	mg/kg	7.2	mg/kg	M	3.6E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.051
												Total Hazard Index Across All Exposure Routes/Pathways	0.068

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-4a-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER SEDIMENT - Child Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	6.4	mg/kg	6.4	mg/kg	M	1.5E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.022
Dermal	PCBs	6.4	mg/kg	6.4	mg/kg	M	1.2E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.017
												Total Hazard Index Across All Exposure Routes/Pathways	0.039

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-4a-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER SEDIMENT - Child Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	7.2	mg/kg	7.2	mg/kg	M	9.2E-07	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.013
Dermal	PCBs	7.2	mg/kg	7.2	mg/kg	M	7.2E-07	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.010
												Total Hazard Index Across All Exposure Routes/Pathways	0.023

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-4b-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER SEDIMENT - Avid Child Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	6.4	mg/kg	6.4	mg/kg	M	1.2E-05	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.17
Dermal	PCBs	6.4	mg/kg	6.4	mg/kg	M	9.5E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.14
												Total Hazard Index Across All Exposure Routes/Pathways	0.31

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-4b-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER SEDIMENT - Avid Child Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	PCBs	7.2	mg/kg	7.2	mg/kg	M	6.8E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.098
Dermal	PCBs	7.2	mg/kg	7.2	mg/kg	M	5.4E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.076
												Total Hazard Index Across All Exposure Routes/Pathways	0.17

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-5a-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER WATER - Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Dermal	PCBs	3.4E-05	mg/L	3.4E-05	mg/L	M	3.9E-07	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.0055
												Total Hazard Index Across All Exposure Routes/Pathways	0.0055

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-5a-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER WATER - Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Dermal	PCBs	4.6E-05	mg/L	4.6E-05	mg/L	M	2.8E-07	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.0040
												Total Hazard Index Across All Exposure Routes/Pathways	0.0040

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-5b-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER WATER - Avid Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Dermal	PCBs	3.4E-05	mg/L	3.4E-05	mg/L	M	3.1E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.044
												Total Hazard Index Across All Exposure Routes/Pathways	0.044

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-5b-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER WATER - Avid Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Dermal	PCBs	4.6E-05	mg/L	4.6E-05	mg/L	M	2.1E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.030
												Total Hazard Index Across All Exposure Routes/Pathways	0.030

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-6a-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER WATER - Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Dermal	PCBs	4.0E-05	mg/L	4.0E-05	mg/L	M	1.6E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.023
												Total Hazard Index Across All Exposure Routes/Pathways	0.023

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-6a-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER WATER - Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Dermal	PCBs	4.8E-05	mg/L	4.8E-05	mg/L	M	1.0E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.014
												Total Hazard Index Across All Exposure Routes/Pathways	0.014

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-6b-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER WATER - Avid Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Dermal	PCBs	4.0E-05	mg/L	4.0E-05	mg/L	M	4.3E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.062
												Total Hazard Index Across All Exposure Routes/Pathways	0.062

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-6b-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER WATER - Avid Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Dermal	PCBs	4.8E-05	mg/L	4.8E-05	mg/L	M	2.6E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.037
												Total Hazard Index Across All Exposure Routes/Pathways	0.037

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-7a-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER WATER - Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Dermal	PCBs	4.5E-05	mg/L	4.5E-05	mg/L	M	9.2E-07	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.013
												Total Hazard Index Across All Exposure Routes/Pathways	0.013

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-7a-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER WATER - Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Dermal	PCBs	4.8E-05	mg/L	4.8E-05	mg/L	M	5.3E-07	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.0075
												Total Hazard Index Across All Exposure Routes/Pathways	0.0075

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-7b-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER WATER - Avid Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Dermal	PCBs	4.5E-05	mg/L	4.5E-05	mg/L	M	7.4E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.11
												Total Hazard Index Across All Exposure Routes/Pathways	0.11

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-7b-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER WATER - Avid Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Dermal	PCBs	4.8E-05	mg/L	4.8E-05	mg/L	M	3.9E-06	mg/kg-day	7.0E-05	mg/kg-day	N/A	N/A	0.056
												Total Hazard Index Across All Exposure Routes/Pathways	0.056

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-8-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER AIR - Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	PCBs	4.2E-05	mg/L	1.7E-05	mg/m^3	R	5.5E-08	mg/kg-day	N/A	mg/kg-day	N/A	N/A	N/A
											Total Hazard Index Across All Exposure Routes/Pathways		N/A

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-8-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER AIR - Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	PCBs	2.4E-05	mg/L	1.0E-06	mg/m^3	R	1.8E-09	mg/kg-day	N/A	mg/kg-day	N/A	N/A	N/A
											Total Hazard Index Across All Exposure Routes/Pathways		N/A

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-9-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER AIR - Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	PCBs	4.2E-05	mg/L	1.7E-05	mg/m^3	R	2.7E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	N/A
												Total Hazard Index Across All Exposure Routes/Pathways	N/A

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-9-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER AIR - Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	PCBs	2.4E-05	mg/L	1.0E-06	mg/m^3	R	8.2E-09	mg/kg-day	N/A	mg/kg-day	N/A	N/A	N/A
											Total Hazard Index Across All Exposure Routes/Pathways		N/A

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-10-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER AIR - Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	PCBs	4.2E-05	mg/L	1.7E-05	mg/m^3	R	1.9E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	N/A
												Total Hazard Index Across All Exposure Routes/Pathways	N/A

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-10-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER AIR - Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	PCBs	2.4E-05	mg/L	1.0E-06	mg/m^3	R	6.1E-09	mg/kg-day	N/A	mg/kg-day	N/A	N/A	N/A
											Total Hazard Index Across All Exposure Routes/Pathways		N/A

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-11-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER AIR - Adult Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	PCBs	4.2E-05	mg/L	1.7E-05	mg/m^3	R	4.7E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	N/A
												Total Hazard Index Across All Exposure Routes/Pathways	N/A

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-11-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER AIR - Adult Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	PCBs	2.4E-05	mg/L	1.0E-06	mg/m^3	R	2.7E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	N/A
												Total Hazard Index Across All Exposure Routes/Pathways	N/A

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-12-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER AIR - Adolescent Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	PCBs	4.2E-05	mg/L	1.7E-05	mg/m^3	R	5.1E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	N/A
												Total Hazard Index Across All Exposure Routes/Pathways	N/A

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-12-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER AIR - Adolescent Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	PCBs	2.4E-05	mg/L	1.0E-06	mg/m^3	R	3.0E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	N/A
												Total Hazard Index Across All Exposure Routes/Pathways	N/A

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-13-RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER AIR - Child Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	PCBs	4.2E-05	mg/L	1.7E-05	mg/m^3	R	9.0E-06	mg/kg-day	N/A	mg/kg-day	N/A	N/A	N/A
											Total Hazard Index Across All Exposure Routes/Pathways		N/A

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-13-CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER AIR - Child Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Inhalation	PCBs	2.4E-05	mg/L	1.0E-06	mg/m^3	R	5.3E-07	mg/kg-day	N/A	mg/kg-day	N/A	N/A	N/A
											Total Hazard Index Across All Exposure Routes/Pathways		N/A

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for hazard calculation.

TABLE 5-14a-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER FISH - Adult Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	2.0	mg/kg wt weight	2.0	mg/kg wt weight	M	2.9E-04	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	5.8E-04
										Total Risk Across All Exposure Routes/Pathways	5.8E-04

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-14a-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER FISH - Adult Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	3.0	mg/kg wt weight	3.0	mg/kg wt weight	M	1.2E-05	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	1.2E-05
										Total Risk Across All Exposure Routes/Pathways	1.2E-05

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-14b-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER FISH - Adolescent Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	2.5	mg/kg wt weight	2.5	mg/kg wt weight	M	2.1E-04	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	4.3E-04
										Total Risk Across All Exposure Routes/Pathways	4.3E-04

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-14b-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER FISH - Adolescent Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	3.3	mg/kg wt weight	3.3	mg/kg wt weight	M	7.2E-06	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	7.2E-06
										Total Risk Across All Exposure Routes/Pathways	7.2E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-14c-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER FISH - Child Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	3.0	mg/kg wt weight	3.0	mg/kg wt weight	M	1.8E-04	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	3.6E-04
										Total Risk Across All Exposure Routes/Pathways	3.6E-04

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-14c-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER FISH - Child Angler

Scenario Timeframe: Current/Future
Medium: Fish
Exposure Medium: Fish
Exposure Point: Upper Hudson Fish
Receptor Population: Angler
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	3.3	mg/kg wt weight	3.3	mg/kg wt weight	M	9.9E-06	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	9.9E-06
										Total Risk Across All Exposure Routes/Pathways	9.9E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-15a-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Adult Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	3.8	mg/kg	3.8	mg/kg	M	3.2E-08	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	6.4E-08
Dermal	PCBs	3.8	mg/kg	3.8	mg/kg	M	1.6E-07	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	3.3E-07
										Total Risk Across All Exposure Routes/Pathways	3.9E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-15a-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Adult Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	6.6	mg/kg	6.6	mg/kg	M	6.5E-09	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	6.5E-09
Dermal	PCBs	6.6	mg/kg	6.6	mg/kg	M	3.3E-08	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	3.3E-08
										Total Risk Across All Exposure Routes/Pathways	4.0E-08

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-15b-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Avid Adult Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	3.8	mg/kg	3.8	mg/kg	M	2.6E-07	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	5.1E-07
Dermal	PCBs	3.8	mg/kg	3.8	mg/kg	M	1.3E-06	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	2.6E-06
										Total Risk Across All Exposure Routes/Pathways	3.1E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-15b-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Avid Adult Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	6.6	mg/kg	6.6	mg/kg	M	4.8E-08	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	4.8E-08
Dermal	PCBs	6.6	mg/kg	6.6	mg/kg	M	2.5E-07	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	2.5E-07
										Total Risk Across All Exposure Routes/Pathways	2.9E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-16a-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	5.2	mg/kg	5.2	mg/kg	M	1.1E-07	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	2.2E-07
Dermal	PCBs	5.2	mg/kg	5.2	mg/kg	M	3.3E-07	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	6.6E-07
										Total Risk Across All Exposure Routes/Pathways	8.8E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-16a-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	7.2	mg/kg	7.2	mg/kg	M	2.0E-08	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	2.0E-08
Dermal	PCBs	7.2	mg/kg	7.2	mg/kg	M	5.9E-08	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	5.9E-08
										Total Risk Across All Exposure Routes/Pathways	7.8E-08

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-16b-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Avid Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	5.2	mg/kg	5.2	mg/kg	M	3.0E-07	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	5.9E-07
Dermal	PCBs	5.2	mg/kg	5.2	mg/kg	M	8.8E-07	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	1.8E-06
										Total Risk Across All Exposure Routes/Pathways	2.4E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-16b-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER SEDIMENT- Avid Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	7.2	mg/kg	7.2	mg/kg	M	5.1E-08	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	5.1E-08
Dermal	PCBs	7.2	mg/kg	7.2	mg/kg	M	1.5E-07	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	1.5E-07
										Total Risk Across All Exposure Routes/Pathways	2.0E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-17a-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER SEDIMENT - Child Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	6.4	mg/kg	6.4	mg/kg	M	1.3E-07	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	2.6E-07
Dermal	PCBs	6.4	mg/kg	6.4	mg/kg	M	1.0E-07	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	2.0E-07
										Total Risk Across All Exposure Routes/Pathways	4.6E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-17a-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER SEDIMENT - Child Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	7.2	mg/kg	7.2	mg/kg	M	4.0E-08	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	4.0E-08
Dermal	PCBs	7.2	mg/kg	7.2	mg/kg	M	3.1E-08	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	3.1E-08
										Total Risk Across All Exposure Routes/Pathways	7.0E-08

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-17b-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER SEDIMENT - Avid Child Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	6.4	mg/kg	6.4	mg/kg	M	1.0E-06	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	2.1E-06
Dermal	PCBs	6.4	mg/kg	6.4	mg/kg	M	8.1E-07	mg/kg-day	2	$(mg/kg\text{-}day)^{-1}$	1.6E-06
										Total Risk Across All Exposure Routes/Pathways	3.7E-06

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-17b-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER SEDIMENT - Avid Child Recreator

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Banks of Upper Hudson
Receptor Population: Avid Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	PCBs	7.2	mg/kg	7.2	mg/kg	M	2.9E-07	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	2.9E-07
Dermal	PCBs	7.2	mg/kg	7.2	mg/kg	M	2.3E-07	mg/kg-day	1	$(mg/kg\text{-}day)^{-1}$	2.3E-07
										Total Risk Across All Exposure Routes/Pathways	5.2E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-18a-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER WATER - Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	PCBs	3.4E-05	mg/L	3.4E-05	mg/L	M	1.3E-07	mg/kg-day	0.4	$(mg/kg\text{-}day)^{-1}$	5.1E-08
										Total Risk Across All Exposure Routes/Pathways	5.1E-08

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-18a-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER WATER - Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	PCBs	4.6E-05	mg/L	4.6E-05	mg/L	M	2.0E-08	mg/kg-day	0.3	$(mg/kg\text{-}day)^{-1}$	6.1E-09
										Total Risk Across All Exposure Routes/Pathways	6.1E-09

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-18b-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER WATER - Avid Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	PCBs	3.4E-05	mg/L	3.4E-05	mg/L	M	1.0E-06	mg/kg-day	0.4	$(mg/kg\text{-}day)^{-1}$	4.1E-07
										Total Risk Across All Exposure Routes/Pathways	4.1E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-18b-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER WATER - Avid Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	PCBs	4.6E-05	mg/L	4.6E-05	mg/L	M	1.5E-07	mg/kg-day	0.3	$(mg/kg\text{-}day)^{-1}$	4.5E-08
										Total Risk Across All Exposure Routes/Pathways	4.5E-08

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-19a-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER WATER - Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	PCBs	4.0E-05	mg/L	4.0E-05	mg/L	M	2.8E-07	mg/kg-day	0.4	$(mg/kg\text{-}day)^{-1}$	1.1E-07
										Total Risk Across All Exposure Routes/Pathways	1.1E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-19a-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER WATER - Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	PCBs	4.8E-05	mg/L	4.8E-05	mg/L	M	4.3E-08	mg/kg-day	0.3	$(mg/kg\text{-}day)^{-1}$	1.3E-08
										Total Risk Across All Exposure Routes/Pathways	1.3E-08

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-19b-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER WATER - Avid Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	PCBs	4.0E-05	mg/L	4.0E-05	mg/L	M	7.4E-07	mg/kg-day	0.4	$(mg/kg\text{-}day)^{-1}$	3.0E-07
										Total Risk Across All Exposure Routes/Pathways	3.0E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-19b-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER WATER - Avid Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	PCBs	4.8E-05	mg/L	4.8E-05	mg/L	M	1.1E-07	mg/kg-day	0.3	$(mg/kg\text{-}day)^{-1}$	3.3E-08
										Total Risk Across All Exposure Routes/Pathways	3.3E-08

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-20a-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER WATER - Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	PCBs	4.5E-05	mg/L	4.5E-05	mg/L	M	7.9E-08	mg/kg-day	0.4	$(mg/kg\text{-}day)^{-1}$	3.2E-08
										Total Risk Across All Exposure Routes/Pathways	3.2E-08

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-20a-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER WATER - Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	PCBs	4.8E-05	mg/L	4.8E-05	mg/L	M	2.3E-08	mg/kg-day	0.3	$(mg/kg\text{-}day)^{-1}$	6.8E-09
										Total Risk Across All Exposure Routes/Pathways	6.8E-09

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-20b-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER WATER - Avid Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	PCBs	4.5E-05	mg/L	4.5E-05	mg/L	M	6.3E-07	mg/kg-day	0.4	$(mg/kg\text{-}day)^{-1}$	2.5E-07
										Total Risk Across All Exposure Routes/Pathways	2.5E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-20b-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER WATER - Avid Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: River Water
Exposure Point: Upper Hudson River
Receptor Population: Avid Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Dermal	PCBs	4.8E-05	mg/L	4.8E-05	mg/L	M	1.7E-07	mg/kg-day	0.3	$(mg/kg\text{-}day)^{-1}$	5.0E-08
										Total Risk Across All Exposure Routes/Pathways	5.0E-08

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-21-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER AIR - Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	PCBs	4.2E-05	mg/L	1.7E-05	mg/m^3	R	1.8E-08	mg/kg-day	0.4	$(mg/kg\text{-}day)^{-1}$	7.3E-09
										Total Risk Across All Exposure Routes/Pathways	7.3E-09

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-21-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER AIR - Adult Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	PCBs	2.4E-05	mg/L	1.0E-06	mg/m^3	R	1.3E-10	mg/kg-day	0.3	$(mg/kg\text{-}day)^{-1}$	3.8E-11
										Total Risk Across All Exposure Routes/Pathways	3.8E-11

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-22-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER AIR - Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	PCBs	4.2E-05	mg/L	1.7E-05	mg/m^3	R	4.6E-08	mg/kg-day	0.4	$(mg/kg\text{-}day)^{-1}$	1.9E-08
										Total Risk Across All Exposure Routes/Pathways	1.9E-08

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-22-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER AIR - Adolescent Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	PCBs	2.4E-05	mg/L	1.0E-06	mg/m^3	R	3.5E-10	mg/kg-day	0.3	$(mg/kg\text{-}day)^{-1}$	1.0E-10
										Total Risk Across All Exposure Routes/Pathways	1.0E-10

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-23-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER AIR - Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	PCBs	4.2E-05	mg/L	1.7E-05	mg/m^3	R	1.7E-08	mg/kg-day	0.4	$(mg/kg\text{-}day)^{-1}$	6.6E-09
										Total Risk Across All Exposure Routes/Pathways	6.6E-09

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-23-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER AIR - Child Recreator

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Recreator
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	PCBs	2.4E-05	mg/L	1.0E-06	mg/m^3	R	2.6E-10	mg/kg-day	0.3	$(mg/kg\text{-}day)^{-1}$	7.9E-11
										Total Risk Across All Exposure Routes/Pathways	7.9E-11

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-24-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER AIR - Adult Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	PCBs	4.2E-05	mg/L	1.7E-05	mg/m^3	R	1.5E-06	mg/kg-day	0.4	$(mg/kg\text{-}day)^{-1}$	6.1E-07
										Total Risk Across All Exposure Routes/Pathways	6.1E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-24-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER AIR - Adult Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	PCBs	2.4E-05	mg/L	1.0E-06	mg/m^3	R	2.0E-08	mg/kg-day	0.3	$(mg/kg\text{-}day)^{-1}$	5.9E-09
										Total Risk Across All Exposure Routes/Pathways	5.9E-09

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-25-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER AIR - Adolescent Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	PCBs	4.2E-05	mg/L	1.7E-05	mg/m^3	R	8.8E-07	mg/kg-day	0.4	$(mg/kg\text{-}day)^{-1}$	3.5E-07
										Total Risk Across All Exposure Routes/Pathways	3.5E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-25-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER AIR - Adolescent Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Adolescent

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	PCBs	2.4E-05	mg/L	1.0E-06	mg/m^3	R	1.3E-08	mg/kg-day	0.3	$(mg/kg\text{-}day)^{-1}$	3.9E-09
										Total Risk Across All Exposure Routes/Pathways	3.9E-09

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-26-RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
UPPER HUDSON RIVER AIR - Child Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	PCBs	4.2E-05	mg/L	1.7E-05	mg/m^3	R	7.7E-07	mg/kg-day	0.4	$(mg/kg\text{-}day)^{-1}$	3.1E-07
										Total Risk Across All Exposure Routes/Pathways	3.1E-07

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-26-CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
UPPER HUDSON RIVER AIR - Child Resident

Scenario Timeframe: Current/Future
Medium: River Water
Exposure Medium: Outdoor Air
Exposure Point: Upper Hudson River -- Volatilized PCBs
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Inhalation	PCBs	2.4E-05	mg/L	1.0E-06	mg/m^3	R	2.3E-08	mg/kg-day	0.3	$(mg/kg\text{-}day)^{-1}$	6.8E-09
										Total Risk Across All Exposure Routes/Pathways	6.8E-09

(1) Specify Medium-Specific (M) or Route-Specific (R) EPC selected for risk calculation.

TABLE 5-27a-RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

UPPER HUDSON RIVER - Adult Angler

Scenario Timeframe: Current/Future
Receptor Population: Angler
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish	Fish	Upper Hudson Fish	PCBs	5.8E-04	--	--	5.8E-04	PCBs	LOAEL	65	--	--	65
						Total Risk Across Fish	5.8E-04					Total Hazard Index Across All Media and All Exposure Routes	65
						Total Risk Across All Media and All Exposure Routes	5.8E-04						
												Total LOAEL HI =	65

TABLE 5-27a-CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

UPPER HUDSON RIVER - Adult Angler

Scenario Timeframe: Current/Future
Receptor Population: Angler
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish	Fish	Upper Hudson Fish	PCBs	1.2E-05	--	--	1.2E-05	PCBs	LOAEL	6.7	--	--	6.7
						Total Risk Across Fish	1.2E-05					Total Hazard Index Across All Media and All Exposure Routes	6.7
						Total Risk Across All Media and All Exposure Routes	1.2E-05						
												Total LOAEL HI =	6.7

TABLE 5-27b-RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

UPPER HUDSON RIVER - Adolescent Angler

Scenario Timeframe: Current/Future
Receptor Population: Angler
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish	Fish	Upper Hudson Fish	PCBs	4.3E-04	--	--	4.3E-04	PCBs	LOAEL	71	--	--	71
						Total Risk Across Fish	4.3E-04					Total Hazard Index Across All Media and All Exposure Routes	71
						Total Risk Across All Media and All Exposure Routes	4.3E-04						
												Total LOAEL HI =	71

TABLE 5-27b-CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

UPPER HUDSON RIVER - Adolescent Angler

Scenario Timeframe: Current/Future
Receptor Population: Angler
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish	Fish	Upper Hudson Fish	PCBs	7.2E-06	--	--	7.2E-06	PCBs	LOAEL	8.4	--	--	8.4
						Total Risk Across Fish	7.2E-06					Total Hazard Index Across All Media and All Exposure Routes	8.4
						Total Risk Across All Media and All Exposure Routes	7.2E-06						
												Total LOAEL HI =	8.4

TABLE 5-27c-RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

UPPER HUDSON RIVER - Child Angler

Scenario Timeframe: Current/Future
Receptor Population: Angler
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish	Fish	Upper Hudson Fish	PCBs	3.6E-04	--	--	3.6E-04	PCBs	LOAEL	104	--	--	104
						Total Risk Across Fish	3.6E-04					Total Hazard Index Across All Media and All Exposure Routes	104
						Total Risk Across All Media and All Exposure Routes	3.6E-04						
												Total LOAEL HI =	104

TABLE 5-27c-CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

UPPER HUDSON RIVER - Child Angler

Scenario Timeframe: Current/Future
Receptor Population: Angler
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Fish	Fish	Upper Hudson Fish	PCBs	9.9E-06	--	--	9.9E-06	PCBs	LOAEL	12	--	--	12
						Total Risk Across Fish	9.9E-06					Total Hazard Index Across All Media and All Exposure Routes	12
						Total Risk Across All Media and All Exposure Routes	9.9E-06						
												Total LOAEL HI =	12

TABLE 5-28a-RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

UPPER HUDSON RIVER - Adult Recreator

Scenario Timeframe: Current/Future
Receptor Population: Recreator
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Banks of Upper Hudson	PCBs	6.4E-08	--	3.3E-07	3.9E-07	PCBs	NOAEL	0.0014	--	0.0071	0.0085
River Water	River Water	Upper Hudson River	PCBs	--	--	5.1E-08	5.1E-08	PCBs	NOAEL	--	--	0.0055	0.0055
River Water	Outdoor Air	Upper Hudson River - Volatilized PCBs	PCBs	--	7.3E-09	--	7.3E-09	PCBs	NOAEL	--	N/A	--	N/A
						Total Risk Across Sediment	3.9E-07					Total Hazard Index Across All Media and All Exposure Routes	0.014
						Total Risk Across River Water	5.8E-08						
						Total Risk Across All Media and All Exposure Routes	4.5E-07					Total NOAEL HI =	0.014

TABLE 5-28a-CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

UPPER HUDSON RIVER - Adult Recreator

Scenario Timeframe: Current/Future
Receptor Population: Recreator
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Banks of Upper Hudson	PCBs	6.5E-09	--	3.3E-08	4.0E-08	PCBs	NOAEL	0.0013	--	0.0066	0.0079
River Water	River Water	Upper Hudson River	PCBs	--	--	6.1E-09	6.1E-09	PCBs	NOAEL	--	--	0.0040	0.0040
River Water	Outdoor Air	Upper Hudson River - Volatilized PCBs	PCBs	--	3.8E-11	--	3.8E-11	PCBs	NOAEL	--	N/A	--	N/A

Total Risk Across Sediment	4.0E-08	Total Hazard Index Across All Media and All Exposure Routes	0.012
Total Risk Across River Water	6.1E-09		
Total Risk Across All Media and All Exposure Routes	4.6E-08	Total NOAEL HI =	0.012

TABLE 5-28b-RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

UPPER HUDSON RIVER - Avid Adult Recreator

Scenario Timeframe: Current/Future
Receptor Population: Avid Recreator
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Banks of Upper Hudson	PCBs	5.1E-07	--	2.6E-06	3.1E-06	PCBs	NOAEL	0.011	--	0.057	0.068
River Water	River Water	Upper Hudson River	PCBs	--	--	4.1E-07	4.1E-07	PCBs	NOAEL	--	--	0.044	0.044
River Water	Outdoor Air	Upper Hudson River - Volatilized PCBs	PCBs	--	7.3E-09	--	7.3E-09	PCBs	NOAEL	--	N/A	--	N/A

Total Risk Across Sediment	3.1E-06	Total Hazard Index Across All Media and All Exposure Routes	0.11
Total Risk Across River Water	4.1E-07		
Total Risk Across All Media and All Exposure Routes	3.5E-06	Total NOAEL HI =	0.11

TABLE 5-28b-CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

UPPER HUDSON RIVER - Avid Adult Recreator

Scenario Timeframe: Current/Future
Receptor Population: Avid Recreator
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Banks of Upper Hudson	PCBs	4.8E-08	--	2.5E-07	2.9E-07	PCBs	NOAEL	0.010	--	0.049	0.059
River Water	River Water	Upper Hudson River	PCBs	--	--	4.5E-08	4.5E-08	PCBs	NOAEL	--	--	0.030	0.030
River Water	Outdoor Air	Upper Hudson River - Volatilized PCBs	PCBs	--	3.8E-11	--	3.8E-11	PCBs	NOAEL	--	N/A	--	N/A

Total Risk Across Sediment	2.9E-07	Total Hazard Index Across All Media and All Exposure Routes	0.089
Total Risk Across River Water	4.5E-08		
Total Risk Across All Media and All Exposure Routes	3.4E-07	Total NOAEL HI =	0.089

TABLE 5-29a-RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

UPPER HUDSON RIVER - Adolescent Recreator

Scenario Timeframe: Current/Future
Receptor Population: Recreator
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Banks of Upper Hudson	PCBs	2.2E-07	--	6.6E-07	8.8E-07	PCBs	NOAEL	0.0092	--	0.028	0.037
River Water	River Water	Upper Hudson River	PCBs	--	--	1.1E-07	1.1E-07	PCBs	NOAEL	--	--	0.023	0.023
River Water	Outdoor Air	Upper Hudson River - Volatilized PCBs	PCBs	--	1.9E-08	--	1.9E-08	PCBs	NOAEL	--	N/A	--	N/A

Total Risk Across Sediment	8.8E-07	Total Hazard Index Across All Media and All Exposure Routes	0.060
Total Risk Across River Water	1.3E-07		
Total Risk Across All Media and All Exposure Routes	1.0E-06	Total NOAEL HI =	0.060

TABLE 5-29a-CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

UPPER HUDSON RIVER - Adolescent Recreator

Scenario Timeframe: Current/Future
Receptor Population: Recreator
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Banks of Upper Hudson	PCBs	2.0E-08	--	5.9E-08	7.8E-08	PCBs	NOAEL	0.0066	--	0.020	0.026
River Water	River Water	Upper Hudson River	PCBs	--	--	1.3E-08	1.3E-08	PCBs	NOAEL	--	--	0.014	0.014
River Water	Outdoor Air	Upper Hudson River - Volatilized PCBs	PCBs	--	1.0E-10	--	1.0E-10	PCBs	NOAEL	--	N/A	--	N/A
						Total Risk Across Sediment	7.8E-08					Total Hazard Index Across All Media and All Exposure Routes	0.040
						Total Risk Across River Water	1.3E-08						
						Total Risk Across All Media and All Exposure Routes	9.1E-08					Total NOAEL HI =	0.040

TABLE 5-29b-RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

UPPER HUDSON RIVER - Avid Adolescent Recreator

Scenario Timeframe: Current/Future
Receptor Population: Avid Recreator
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Banks of Upper Hudson	PCBs	5.9E-07	--	1.8E-06	2.4E-06	PCBs	NOAEL	0.025	--	0.074	0.10
River Water	River Water	Upper Hudson River	PCBs	--	--	3.0E-07	3.0E-07	PCBs	NOAEL	--	--	0.062	0.062
River Water	Outdoor Air	Upper Hudson River - Volatilized PCBs	PCBs	--	1.9E-08	--	1.9E-08	PCBs	NOAEL	--	N/A	--	N/A

Total Risk Across Sediment	2.4E-06	Total Hazard Index Across All Media and All Exposure Routes	0.16
Total Risk Across River Water	3.2E-07		
Total Risk Across All Media and All Exposure Routes	2.7E-06	Total NOAEL HI =	0.16

TABLE 5-29b-CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

UPPER HUDSON RIVER - Avid Adolescent Recreator

Scenario Timeframe: Current/Future
Receptor Population: Avid Recreator
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Banks of Upper Hudson	PCBs	5.1E-08	--	1.5E-07	2.0E-07	PCBs	NOAEL	0.017	--	0.051	0.068
River Water	River Water	Upper Hudson River	PCBs	--	--	3.3E-08	3.3E-08	PCBs	NOAEL	--	--	0.037	0.037
River Water	Outdoor Air	Upper Hudson River - Volatilized PCBs	PCBs	--	1.0E-10	--	1.0E-10	PCBs	NOAEL	--	N/A	--	N/A

Total Risk Across Sediment	2.0E-07	Total Hazard Index Across All Media and All Exposure Routes	0.11
Total Risk Across River Water	3.4E-08		
Total Risk Across All Media and All Exposure Routes	2.4E-07	Total NOAEL HI =	0.11

TABLE 5-30a-RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

UPPER HUDSON RIVER - Child Recreator

Scenario Timeframe: Current/Future
Receptor Population: Recreator
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Banks of Upper Hudson	PCBs	2.6E-07	--	2.0E-07	4.6E-07	PCBs	NOAEL	0.022	--	0.017	0.039
River Water	River Water	Upper Hudson River	PCBs	--	--	3.2E-08	3.2E-08	PCBs	NOAEL	--	--	0.013	0.013
River Water	Outdoor Air	Upper Hudson River - Volatilized PCBs	PCBs	--	6.6E-09	--	6.6E-09	PCBs	NOAEL	--	N/A	--	N/A
						Total Risk Across Sediment	4.6E-07					Total Hazard Index Across All Media and All Exposure Routes	0.052
						Total Risk Across River Water	3.8E-08						
						Total Risk Across All Media and All Exposure Routes	5.0E-07					Total NOAEL HI =	0.052

TABLE 5-30a-CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

UPPER HUDSON RIVER - Child Recreator

Scenario Timeframe: Current/Future
Receptor Population: Recreator
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Banks of Upper Hudson	PCBs	4.0E-08	--	3.1E-08	7.0E-08	PCBs	NOAEL	0.013	--	0.010	0.023
River Water	River Water	Upper Hudson River	PCBs	--	--	6.8E-09	6.8E-09	PCBs	NOAEL	--	--	0.0075	0.0075
River Water	Outdoor Air	Upper Hudson River - Volatilized PCBs	PCBs	--	7.9E-11	--	7.9E-11	PCBs	NOAEL	--	N/A	--	N/A
						Total Risk Across Sediment	7.0E-08					Total Hazard Index Across All Media and All Exposure Routes	0.031
						Total Risk Across River Water	6.9E-09						
						Total Risk Across All Media and All Exposure Routes	7.7E-08					Total NOAEL HI =	0.031

TABLE 5-30b-RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

UPPER HUDSON RIVER - Avid Child Recreator

Scenario Timeframe: Current/Future
Receptor Population: Avid Recreator
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Banks of Upper Hudson	PCBs	2.1E-06	--	1.6E-06	3.7E-06	PCBs	NOAEL	0.17	--	0.14	0.31
River Water	River Water	Upper Hudson River	PCBs	--	--	2.5E-07	2.5E-07	PCBs	NOAEL	--	--	0.11	0.11
River Water	Outdoor Air	Upper Hudson River - Volatilized PCBs	PCBs	--	6.6E-09	--	6.6E-09	PCBs	NOAEL	--	N/A	--	N/A
						Total Risk Across Sediment	3.7E-06					Total Hazard Index Across All Media and All Exposure Routes	0.41
						Total Risk Across River Water	2.6E-07						
						Total Risk Across All Media and All Exposure Routes	4.0E-06					Total NOAEL HI =	0.41

TABLE 5-30b-CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

UPPER HUDSON RIVER - Avid Child Recreator

Scenario Timeframe: Current/Future
Receptor Population: Avid Recreator
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Banks of Upper Hudson	PCBs	2.9E-07	--	2.3E-07	5.2E-07	PCBs	NOAEL	0.10	--	0.076	0.17
River Water	River Water	Upper Hudson River	PCBs	--	--	5.0E-08	5.0E-08	PCBs	NOAEL	--	--	0.0559	0.0559
River Water	Outdoor Air	Upper Hudson River - Volatilized PCBs	PCBs	--	7.9E-11	--	7.9E-11	PCBs	NOAEL	--	N/A	--	N/A

Total Risk Across Sediment	5.2E-07	Total Hazard Index Across All Media and All Exposure Routes	0.23
Total Risk Across River Water	5.0E-08		
Total Risk Across All Media and All Exposure Routes	5.7E-07	Total NOAEL HI =	0.23

TABLE 5-31-RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

UPPER HUDSON RIVER - Adult Resident

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
River Water	Outdoor Air	Upper Hudson River -- Volatilized PCBs	PCBs	--	6.1E-07	--	6.1E-07	PCBs	LOAEL	--	N/A	--	N/A

Total Risk Across Air: 6.1E-07

Total Risk Across All Media and All Exposure Routes: 6.1E-07

Total Hazard Index Across All Media and All Exposure Routes: N/A

Total LOAEL HI = N/A

TABLE 5-31-CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

UPPER HUDSON RIVER - Adult Resident

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
River Water	Outdoor Air	Upper Hudson River -- Volatilized PCBs	PCBs	--	5.9E-09	--	5.9E-09	PCBs	LOAEL	--	N/A	--	N/A
						Total Risk Across Air	5.9E-09					Total Hazard Index Across All Media and All Exposure Routes	N/A
						Total Risk Across All Media and All Exposure Routes	5.9E-09						
												Total LOAEL HI =	N/A

TABLE 5-32-RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

UPPER HUDSON RIVER - Adolescent Resident

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
River Water	Outdoor Air	Upper Hudson River -- Volatilized PCBs	PCBs	--	3.5E-07	--	3.5E-07	PCBs	LOAEL	--	N/A	--	N/A

Total Risk Across Air: 3.5E-07

Total Risk Across All Media and All Exposure Routes: 3.5E-07

Total Hazard Index Across All Media and All Exposure Routes: N/A

Total LOAEL HI = N/A

TABLE 5-32-CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

UPPER HUDSON RIVER - Adolescent Resident

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
River Water	Outdoor Air	Upper Hudson River -- Volatilized PCBs	PCBs	--	3.9E-09	--	3.9E-09	PCBs	LOAEL	--	N/A	--	N/A
						Total Risk Across Air	3.9E-09					Total Hazard Index Across All Media and All Exposure Routes	N/A
						Total Risk Across All Media and All Exposure Routes	3.9E-09						
												Total LOAEL HI =	N/A

TABLE 5-33-RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

UPPER HUDSON RIVER - Child Resident

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
River Water	Outdoor Air	Upper Hudson River -- Volatilized PCBs	PCBs	--	3.1E-07	--	3.1E-07	PCBs	LOAEL	--	N/A	--	N/A

Total Risk Across Air	3.1E-07	Total Hazard Index Across All Media and All Exposure Routes	N/A
Total Risk Across All Media and All Exposure Routes	3.1E-07		
		Total LOAEL HI =	N/A

TABLE 5-33-CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

UPPER HUDSON RIVER - Child Resident

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
River Water	Outdoor Air	Upper Hudson River -- Volatilized PCBs	PCBs	--	6.8E-09	--	6.8E-09	PCBs	LOAEL	--	N/A	--	N/A

Total Risk Across Air: 6.8E-09

Total Risk Across All Media and All Exposure Routes: 6.8E-09

Total Hazard Index Across All Media and All Exposure Routes: N/A

Total LOAEL HI = N/A

Table 5-34
Total (Tri+) PCB Concentrations - Phase 2 Fish Data - Upper Hudson

Fish Sample	Species	River Mile	Total (Tri+) PCB Concentration (ug/kg wet weight)
EC-F09-0001	SPOT	159	1,770
EC-F09-0002	SPOT	159	1,823
EC-F09-0003	SPOT	159	1,380
EC-F08-0001	LMB	169.5	2,719
EC-F08-0002	LMB	169.5	4,788
EC-F08-0003	LMB	169.5	3,554
EC-F08-0001	PKSD	169.5	5,900
EC-F08-0002	PKSD	169.5	9,765
EC-F08-0003	PKSD	169.5	12,550
EC-F08-0004	PKSD	169.5	10,292
EC-F08-0005	PKSD	169.5	11,173
EC-F08-0001	SPOT	169.5	1,899
EC-F08-0002	SPOT	169.5	1,828
EC-F08-0003	SPOT	169.5	1,442
EC-F08-0001	YP	169.5	10,710
EC-F08-0002	YP	169.5	9,926
EC-F08-0003	YP	169.5	15,208
EC-F08-0004	YP	169.5	21,207
EC-F08-0005	YP	169.5	20,421
EC-F04-0001	LMB	189.5	15,522
EC-F04-0002	LMB	189.5	23,287
EC-F04-0003	LMB	189.5	14,070
EC-F04-0001	PKSD	189.5	40,174
EC-F04-0002	PKSD	189.5	41,422
EC-F04-0003	PKSD	189.5	33,657
EC-F04-0004	PKSD	189.5	56,776
EC-F04-0005	PKSD	189.5	48,177
EC-F04-0001	SPOT	189.5	20,957
EC-F04-0002	SPOT	189.5	11,514
EC-F04-0003	SPOT	189.5	8,799
EC-F04-0001	YP	189.5	35,884
EC-F04-0002	YP	189.5	23,588
EC-F04-0003	YP	189.5	16,057
EC-F04-0004	YP	189.5	19,213
EC-F04-0005	YP	189.5	13,590
EC-F03-0001	PKSD	191.5	14,045
EC-F03-0002	PKSD	191.5	11,090
EC-F03-0003	PKSD	191.5	7,528
EC-F03-0004	PKSD	191.5	12,543
EC-F03-0005	PKSD	191.5	12,178
EC-F03-0006	PKSD	191.5	13,696
EC-F03-0001	SPOT	191.5	4,394
EC-F03-0002	SPOT	191.5	3,167
EC-F03-0003	SPOT	191.5	3,215
EC-F03-0001	YP	191.5	8,797
EC-F03-0002	YP	191.5	26,629
EC-F03-0003	YP	191.5	17,816
EC-F03-0004	YP	191.5	31,776
EC-F03-0005	YP	191.5	28,577
EC-F02-0001	LMB	194.1	17,355
EC-F02-0002	LMB	194.1	7,174
EC-F02-0003	LMB	194.1	6,332
EC-F02-0001	PKSD	194.1	28,859
EC-F02-0002	PKSD	194.1	26,488
EC-F02-0001	SPOT	194.1	23,711
EC-F02-0002	SPOT	194.1	16,420
EC-F02-0003	SPOT	194.1	15,279
EC-F02-0001	YP	194.1	40,163
EC-F02-0002	YP	194.1	48,526
EC-F02-0003	YP	194.1	45,172
EC-F02-0004	YP	194.1	31,330
EC-F02-0005	YP	194.1	47,196
EC-F20-0001	BB	196.9	8,000

Table 5-35
Fraction of Dioxin-Like PCB Congeners in Upper Hudson Fish

			Ratio of Congener Concentration to Total (Tri+) PCB Concentration													
Fish Sample	**Species**	**River Mile**	**77**	**105**	**114**	**118**	**123**	**126**	**156**	**157**	**167**	**169**	**189**	**170**	**180**	**Total**
EC-F09-0001	SPOT	159	3.4E-03	1.7E-02	2.0E-03	3.7E-02	0.0E+00	0.0E+00	2.4E-03	1.1E-03	1.8E-03	0.0E+00	2.2E-04	3.4E-03	8.0E-03	7.6E-02
EC-F09-0002	SPOT	159	3.4E-03	1.7E-02	2.0E-03	3.7E-02	0.0E+00	0.0E+00	2.8E-03	6.1E-04	1.8E-03	0.0E+00	2.2E-04	3.4E-03	8.3E-03	7.6E-02
EC-F09-0003	SPOT	159	3.1E-03	1.8E-02	2.0E-03	3.8E-02	0.0E+00	9.8E-05	2.8E-03	2.7E-04	1.5E-03	0.0E+00	8.4E-05	3.1E-03	8.7E-03	7.7E-02
EC-F08-0001	LMB	169.5	3.4E-03	2.1E-02	2.2E-03	4.0E-02	0.0E+00	2.3E-04	2.8E-03	8.1E-04	1.0E-03	0.0E+00	1.5E-04	3.3E-03	9.0E-03	8.4E-02
EC-F08-0002	LMB	169.5	2.8E-03	1.8E-02	2.1E-03	4.2E-02	0.0E+00	2.2E-04	3.0E-03	5.0E-04	2.0E-03	0.0E+00	1.6E-04	3.7E-03	9.4E-03	8.3E-02
EC-F08-0003	LMB	169.5	2.8E-03	1.6E-02	2.0E-03	3.7E-02	0.0E+00	2.7E-04	2.9E-03	5.9E-04	1.8E-03	0.0E+00	1.4E-04	3.5E-03	9.3E-03	7.7E-02
EC-F08-0001	PKSD	169.5	3.3E-03	1.2E-02	1.3E-03	2.6E-02	0.0E+00	2.3E-04	1.9E-03	3.1E-04	8.6E-04	0.0E+00	0.0E+00	1.5E-03	3.1E-03	5.1E-02
EC-F08-0002	PKSD	169.5	3.3E-03	1.1E-02	1.1E-03	2.4E-02	0.0E+00	0.0E+00	1.5E-03	1.1E-04	6.2E-04	0.0E+00	0.0E+00	1.1E-03	2.4E-03	4.5E-02
EC-F08-0003	PKSD	169.5	3.6E-03	1.3E-02	1.6E-03	2.7E-02	0.0E+00	7.7E-05	1.4E-03	1.3E-04	7.8E-04	0.0E+00	4.8E-05	1.2E-03	2.8E-03	5.1E-02
EC-F08-0004	PKSD	169.5	3.0E-03	1.3E-02	7.7E-04	3.1E-02	9.2E-04	9.2E-04	1.8E-03	2.4E-04	9.9E-04	0.0E+00	0.0E+00	1.5E-03	4.0E-03	5.8E-02
EC-F08-0005	PKSD	169.5	3.0E-03	1.4E-02	9.9E-04	3.0E-02	8.4E-04	0.0E+00	1.7E-03	2.7E-04	8.1E-04	0.0E+00	0.0E+00	1.5E-03	3.5E-03	5.7E-02
EC-F08-0001	SPOT	169.5	2.5E-03	1.7E-02	1.9E-03	3.7E-02	0.0E+00	0.0E+00	2.6E-03	3.0E-04	1.7E-03	0.0E+00	0.0E+00	2.6E-03	7.5E-03	7.4E-02
EC-F08-0002	SPOT	169.5	2.9E-03	1.6E-02	1.8E-03	3.5E-02	0.0E+00	0.0E+00	2.5E-03	2.8E-04	1.7E-03	0.0E+00	0.0E+00	2.6E-03	7.1E-03	7.0E-02
EC-F08-0003	SPOT	169.5	2.8E-03	1.6E-02	1.9E-03	3.6E-02	0.0E+00	0.0E+00	2.6E-03	2.6E-04	1.8E-03	0.0E+00	0.0E+00	2.9E-03	8.2E-03	7.3E-02
EC-F08-0001	YP	169.5	2.9E-03	1.7E-02	3.6E-03	3.5E-02	1.2E-03	0.0E+00	2.5E-03	3.4E-04	1.4E-03	0.0E+00	1.0E-04	2.3E-03	5.9E-03	7.2E-02
EC-F08-0002	YP	169.5	2.8E-03	1.7E-02	2.0E-03	3.6E-02	0.0E+00	0.0E+00	2.4E-03	1.6E-04	1.2E-03	0.0E+00	0.0E+00	2.1E-03	5.1E-03	6.8E-02
EC-F08-0003	YP	169.5	3.1E-03	1.6E-02	1.8E-03	3.2E-02	0.0E+00	7.7E-05	2.3E-03	3.7E-04	1.0E-03	0.0E+00	0.0E+00	1.8E-03	4.2E-03	6.2E-02
EC-F08-0004	YP	169.5	3.0E-03	1.2E-02	3.1E-03	2.3E-02	9.9E-04	0.0E+00	1.9E-03	2.7E-04	9.0E-04	0.0E+00	7.7E-05	1.6E-03	3.8E-03	5.0E-02
EC-F08-0005	YP	169.5	3.2E-03	1.3E-02	1.8E-03	2.7E-02	0.0E+00	8.8E-05	1.7E-03	2.1E-04	8.6E-04	1.2E-05	6.7E-05	1.5E-03	3.9E-03	5.4E-02
EC-F04-0001	LMB	189.5	5.8E-03	1.7E-02	2.0E-03	3.0E-02	1.2E-04	1.4E-04	1.8E-03	4.8E-04	1.0E-03	0.0E+00	8.1E-05	1.8E-03	4.6E-03	6.6E-02
EC-F04-0002	LMB	189.5	7.3E-03	2.3E-02	3.7E-03	4.3E-02	7.6E-04	1.9E-04	3.2E-03	7.9E-04	1.8E-03	0.0E+00	1.3E-04	3.1E-03	7.0E-03	9.4E-02
EC-F04-0003	LMB	189.5	6.7E-03	2.4E-02	3.5E-03	4.5E-02	5.9E-04	1.7E-04	3.2E-03	7.8E-04	1.8E-03	0.0E+00	1.3E-04	3.2E-03	7.3E-03	9.6E-02
EC-F04-0001	PKSD	189.5	5.3E-03	1.2E-02	1.4E-03	2.4E-02	0.0E+00	7.9E-05	1.3E-03	2.5E-04	6.1E-04	0.0E+00	5.7E-05	1.0E-03	2.2E-03	4.9E-02
EC-F04-0002	PKSD	189.5	4.4E-03	1.2E-02	1.5E-03	2.6E-02	0.0E+00	8.9E-05	1.5E-03	1.4E-04	7.8E-04	0.0E+00	6.7E-05	1.3E-03	2.6E-03	5.0E-02
EC-F04-0003	PKSD	189.5	5.3E-03	1.2E-02	1.4E-03	2.5E-02	0.0E+00	1.1E-04	1.3E-03	1.9E-04	6.1E-04	0.0E+00	5.2E-05	9.6E-04	2.2E-03	4.9E-02
EC-F04-0004	PKSD	189.5	6.0E-03	1.4E-02	1.6E-03	2.6E-02	1.1E-04	8.7E-05	1.3E-03	9.6E-05	6.6E-04	0.0E+00	4.1E-05	9.0E-04	2.0E-03	5.2E-02
EC-F04-0005	PKSD	189.5	6.4E-03	1.5E-02	1.6E-03	2.7E-02	2.2E-04	1.0E-04	1.1E-03	3.1E-04	6.5E-04	0.0E+00	3.9E-05	8.8E-04	2.0E-03	5.5E-02
EC-F04-0001	SPOT	189.5	8.0E-03	2.3E-02	2.9E-03	4.1E-02	3.5E-04	0.0E+00	2.4E-03	5.1E-04	1.4E-03	0.0E+00	9.7E-05	2.1E-03	4.5E-03	8.5E-02
EC-F04-0002	SPOT	189.5	7.0E-03	2.4E-02	2.5E-03	4.5E-02	0.0E+00	0.0E+00	2.4E-03	3.0E-04	1.5E-03	0.0E+00	1.7E-04	2.2E-03	4.9E-03	9.0E-02
EC-F04-0003	SPOT	189.5	7.1E-03	2.4E-02	2.5E-03	4.0E-02	0.0E+00	0.0E+00	2.6E-03	3.6E-04	1.4E-03	0.0E+00	2.0E-04	2.5E-03	5.4E-03	8.6E-02
EC-F04-0001	YP	189.5	3.6E-03	1.4E-02	2.8E-03	2.8E-02	1.0E-03	3.3E-05	2.0E-03	3.7E-04	9.6E-04	0.0E+00	6.4E-05	1.7E-03	3.6E-03	5.8E-02
EC-F04-0002	YP	189.5	2.0E-03	8.2E-03	1.1E-03	1.9E-02	0.0E+00	0.0E+00	1.2E-03	7.9E-05	7.5E-04	0.0E+00	5.8E-05	1.1E-03	2.4E-03	3.6E-02
EC-F04-0003	YP	189.5	4.1E-03	1.7E-02	3.4E-03	3.4E-02	1.1E-03	0.0E+00	2.2E-03	4.0E-04	1.2E-03	0.0E+00	8.3E-05	1.9E-03	4.9E-03	7.0E-02
EC-F04-0004	YP	189.5	5.5E-03	1.6E-02	2.6E-03	3.1E-02	0.0E+00	1.1E-04	2.1E-03	5.0E-04	1.0E-03	0.0E+00	7.7E-05	1.9E-03	4.1E-03	6.5E-02
EC-F04-0005	YP	189.5	4.4E-03	1.9E-02	2.2E-03	3.8E-02	0.0E+00	0.0E+00	2.4E-03	2.9E-04	1.4E-03	0.0E+00	1.5E-04	2.0E-03	4.6E-03	7.5E-02
EC-F03-0001	PKSD	191.5	5.9E-03	1.7E-02	2.5E-03	3.8E-02	0.0E+00	1.2E-04	2.2E-03	4.2E-04	1.0E-03	0.0E+00	7.2E-05	1.5E-03	3.6E-03	7.2E-02
EC-F03-0002	PKSD	191.5	5.6E-03	1.7E-02	2.6E-03	3.6E-02	0.0E+00	1.3E-04	2.5E-03	1.7E-04	1.1E-03	0.0E+00	8.6E-05	1.8E-03	4.1E-03	7.2E-02
EC-F03-0003	PKSD	191.5	4.8E-03	1.8E-02	1.4E-03	3.7E-02	0.0E+00	2.1E-04	2.6E-03	3.9E-04	1.2E-03	0.0E+00	2.4E-04	1.7E-03	3.7E-03	7.1E-02
EC-F03-0004	PKSD	191.5	5.1E-03	1.7E-02	2.7E-03	4.0E-02	0.0E+00	1.2E-04	2.3E-03	3.5E-04	1.1E-03	0.0E+00	7.4E-05	1.7E-03	3.8E-03	7.5E-02
EC-F03-0005	PKSD	191.5	3.7E-03	1.5E-02	1.7E-03	3.0E-02	0.0E+00	1.8E-04	1.6E-03	1.3E-04	8.4E-04	0.0E+00	5.7E-05	1.2E-03	2.7E-03	5.7E-02
EC-F03-0006	PKSD	191.5	4.2E-03	1.6E-02	1.4E-03	3.5E-02	0.0E+00	1.8E-04	2.2E-03	3.6E-04	1.1E-03	0.0E+00	1.6E-04	1.6E-03	3.3E-03	6.6E-02
EC-F03-0001	SPOT	191.5	4.5E-03	2.3E-02	2.5E-03	4.6E-02	0.0E+00	1.3E-04	3.1E-03	1.3E-04	1.8E-03	0.0E+00	0.0E+00	2.5E-03	5.8E-03	8.9E-02
EC-F03-0002	SPOT	191.5	3.9E-03	2.5E-02	2.9E-03	4.9E-02	0.0E+00	1.3E-04	3.5E-03	1.8E-04	2.2E-03	0.0E+00	7.8E-05	3.0E-03	7.2E-03	9.8E-02
EC-F03-0003	SPOT	191.5	3.5E-03	2.2E-02	2.6E-03	4.5E-02	1.1E-03	1.3E-04	2.7E-03	1.1E-03	1.8E-03	0.0E+00	2.1E-04	3.0E-03	6.9E-03	9.0E-02
EC-F03-0001	YP	191.5	1.8E-03	9.5E-03	1.1E-03	2.8E-02	0.0E+00	0.0E+00	2.7E-03	5.5E-04	1.8E-03	0.0E+00	2.8E-04	5.2E-03	1.5E-02	6.6E-02
EC-F03-0002	YP	191.5	5.8E-03	2.1E-02	3.3E-03	3.9E-02	3.1E-04	1.4E-04	3.0E-03	2.8E-04	1.3E-03	0.0E+00	8.7E-05	2.2E-03	4.8E-03	8.2E-02
EC-F03-0003	YP	191.5	4.6E-03	2.2E-02	3.1E-03	4.0E-02	2.6E-04	1.2E-04	2.8E-03	2.8E-04	1.2E-03	0.0E+00	7.6E-05	2.0E-03	4.5E-03	8.1E-02
EC-F03-0004	YP	191.5	5.1E-03	2.0E-02	2.6E-03	3.7E-02	2.1E-04	1.3E-04	3.4E-05	0.0E+00	9.3E-04	0.0E+00	5.8E-05	1.5E-03	3.1E-03	7.0E-02
EC-F03-0005	YP	191.5	5.0E-03	2.2E-02	3.2E-03	4.0E-02	2.9E-04	1.3E-04	2.8E-03	3.5E-04	1.3E-03	0.0E+00	7.9E-05	2.1E-03	4.6E-03	8.2E-02
EC-F02-0001	LMB	194.1	4.9E-03	2.1E-02	3.2E-03	4.4E-02	2.6E-04	1.1E-04	3.2E-03	5.3E-04	1.8E-03	0.0E+00	1.3E-04	3.0E-03	6.6E-03	8.9E-02
EC-F02-0002	LMB	194.1	5.3E-03	1.6E-02	1.3E-03	3.1E-02	8.6E-05	0.0E+00	2.0E-03	3.4E-04	1.2E-03	0.0E+00	1.0E-04	2.0E-03	4.8E-03	6.4E-02
EC-F02-0003	LMB	194.1	4.6E-03	1.4E-02	1.6E-03	2.9E-02	0.0E+00	0.0E+00	1.8E-03	5.0E-04	1.2E-03	0.0E+00	1.2E-04	2.1E-03	5.3E-03	6.1E-02
EC-F02-0001	PKSD	194.1	9.7E-03	1.4E-02	3.4E-03	2.7E-02	4.0E-04	6.3E-04	2.7E-03	3.8E-04	1.4E-03	0.0E+00	9.3E-05	2.0E-03	4.6E-03	6.7E-02
EC-F02-0002	PKSD	194.1	5.4E-03	1.5E-02	2.1E-03	3.1E-02	2.5E-04	8.2E-05	1.6E-03	4.0E-04	7.8E-04	0.0E+00	6.5E-05	1.3E-03	2.9E-03	6.0E-02
EC-F02-0001	SPOT	194.1	6.2E-03	2.0E-02	2.4E-03	4.1E-02	3.9E-04	0.0E+00	2.0E-03	3.5E-04	1.3E-03	0.0E+00	8.6E-05	2.0E-03	4.4E-03	8.0E-02
EC-F02-0002	SPOT	194.1	4.8E-03	2.1E-02	2.5E-03	4.3E-02	6.5E-05	0.0E+00	2.1E-03	1.2E-04	1.3E-03	0.0E+00	8.9E-05	1.9E-03	4.4E-03	8.1E-02
EC-F02-0003	SPOT	194.1	5.5E-03	1.9E-02	2.5E-03	3.9E-02	1.9E-04	0.0E+00	2.0E-03	2.4E-04	1.2E-03	0.0E+00	7.8E-05	1.9E-03	4.3E-03	7.5E-02
EC-F02-0001	YP	194.1	4.7E-03	1.5E-02	2.5E-03	2.9E-02	1.2E-03	0.0E+00	2.0E-03	3.9E-04	9.4E-04	0.0E+00	5.2E-05	1.3E-03	3.0E-03	6.1E-02
EC-F02-0002	YP	194.1	5.2E-03	1.8E-02	2.2E-03	3.5E-02	3.0E-04	0.0E+00	1.6E-03	2.4E-04	8.8E-04	0.0E+00	5.7E-05	1.3E-03	3.0E-03	6.8E-02
EC-F02-0003	YP	194.1	1.1E-03	2.0E-02	4.4E-04	3.7E-02	5.3E-05	0.0E+00	3.3E-04	2.9E-05	1.7E-04	0.0E+00	1.2E-05	2.5E-04	5.6E-04	6.0E-02
EC-F02-0004	YP	194.1	5.2E-03	1.8E-02	2.7E-03	3.2E-02	1.1E-03	0.0E+00	1.8E-03	3.3E-04	9.0E-04	0.0E+00	5.6E-05	1.3E-03	3.2E-03	6.6E-02
EC-F02-0005	YP	194.1	5.5E-03	1.7E-02	2.4E-03	3.2E-02	1.3E-04	0.0E+00	1.8E-03	2.5E-04	9.0E-04	0.0E+00	6.0E-05	1.3E-03	2.9E-03	6.5E-02
EC-F20-0001	BB	196.9	2.5E-03	2.3E-02	2.6E-03	5.1E-02	2.5E-04	1.4E-04	3.5E-03	4.0E-04	2.4E-03	0.0E+00	7.5E-05	3.0E-03	7.0E-03	9.6E-02
		Average	4.5E-03	1.7E-02	2.2E-03	3.5E-02	2.4E-04	9.7E-05	2.2E-03	3.5E-04	1.2E-03	1.8E-07	8.6E-05	2.0E-03	4.9E-03	7.0E-02
		Std. Dev.	1.6E-03	3.9E-03	7.4E-04	6.9E-03	3.8E-04	1.5E-04	7.0E-04	2.2E-04	4.5E-04	1.5E-06	6.5E-05	8.6E-04	2.4E-03	1.8E-02

Table 5-36
Dioxin TEQs for Dioxin-Like PCB Congeners

Congener	Structure	Average Congener / Total PCB Ratio	Congener Concentration High End Estimate (2.0 mg/kg total PCBs)	1998 WHO/ IPCS TEFs (Van den Berg *et al* ., 1998)	Dioxin TEQ High End Estimate
Non-ortho PCBs					
77	3,3',4,4'-TCB	0.0045	9.00E-03	0.0001	9.00E-07
81	3,4,4',5-TCB	na	na	0.0001	na
126	3,3',4,4',5-PeCB	0.000097	1.94E-04	0.1	1.94E-05
169	3,3',4,4',5,5'-HxCB	0.00000018	3.60E-07	0.01	3.60E-09
Mono-ortho PCBs					
105	2,3,3',4,4'-PeCB	0.017	3.40E-02	0.0001	3.40E-06
114	2,3,4,4',5-PeCB	0.0022	4.40E-03	0.0005	2.20E-06
118	2,3',4,4',5-PeCB	0.035	7.00E-02	0.0001	7.00E-06
123	2',3,4,4',5-PeCB	0.00024	4.80E-04	0.0001	4.80E-08
156	2,3,3',4,4',5-HxCB	0.0022	4.40E-03	0.0005	2.20E-06
157	2,3,3',4,4',5'-HxCB	0.00035	7.00E-04	0.0005	3.50E-07
167	2,3',4,4',5,5'-HxCB	0.0012	2.40E-03	0.00001	2.40E-08
189	2,3,3',4,4',5,5'-HpCB	0.000086	1.72E-04	0.0001	1.72E-08
	Sum of Dioxin-Like PCB Congeners (mg/kg)		0.13		3.6E-05
	Sum of Non-Dioxin-Like PCB Congeners (mg/kg)		1.9		--

Table 5-37
Risk Estimates for Dioxin and Non-dioxin-like PCBs
Angler Ingestion of Fish

Chemical Name	C_{fish} (mg/kg wet weight)	IR_{fish} (g/d)	FS	EF (d/yr)	ED (yrs)	Conversion Factor (kg/g)	BW (kg)	AT_{Cancer} (d)	Lifetime Avg. Daily Intake (Cancer) (mg/kg-d)	Oral Slope Factor $(mg/kg\text{-}d)^{-1}$	Cancer Risk
High-End*											
Dioxin TEQ	3.6E-05	31.9	1	365	40	1.0E-03	70	25,550	9.3E-09	150,000	1.4E-03
Non-dioxin-like PCBs	1.9	31.9	1	365	40	1.0E-03	70	25,550	4.9E-04	2	9.8E-04

Notes:

Average Daily Intake Equation: Risk = $\frac{(Cfish \times IRfish \times FS \times EF \times ED \times Conversion\ Factor)}{(BW \times AT)} \times Slope\ Factor$

For dioxin, only a plausible upper bound slope factor is available; therefore, a central-tendency estimate was not calculated.

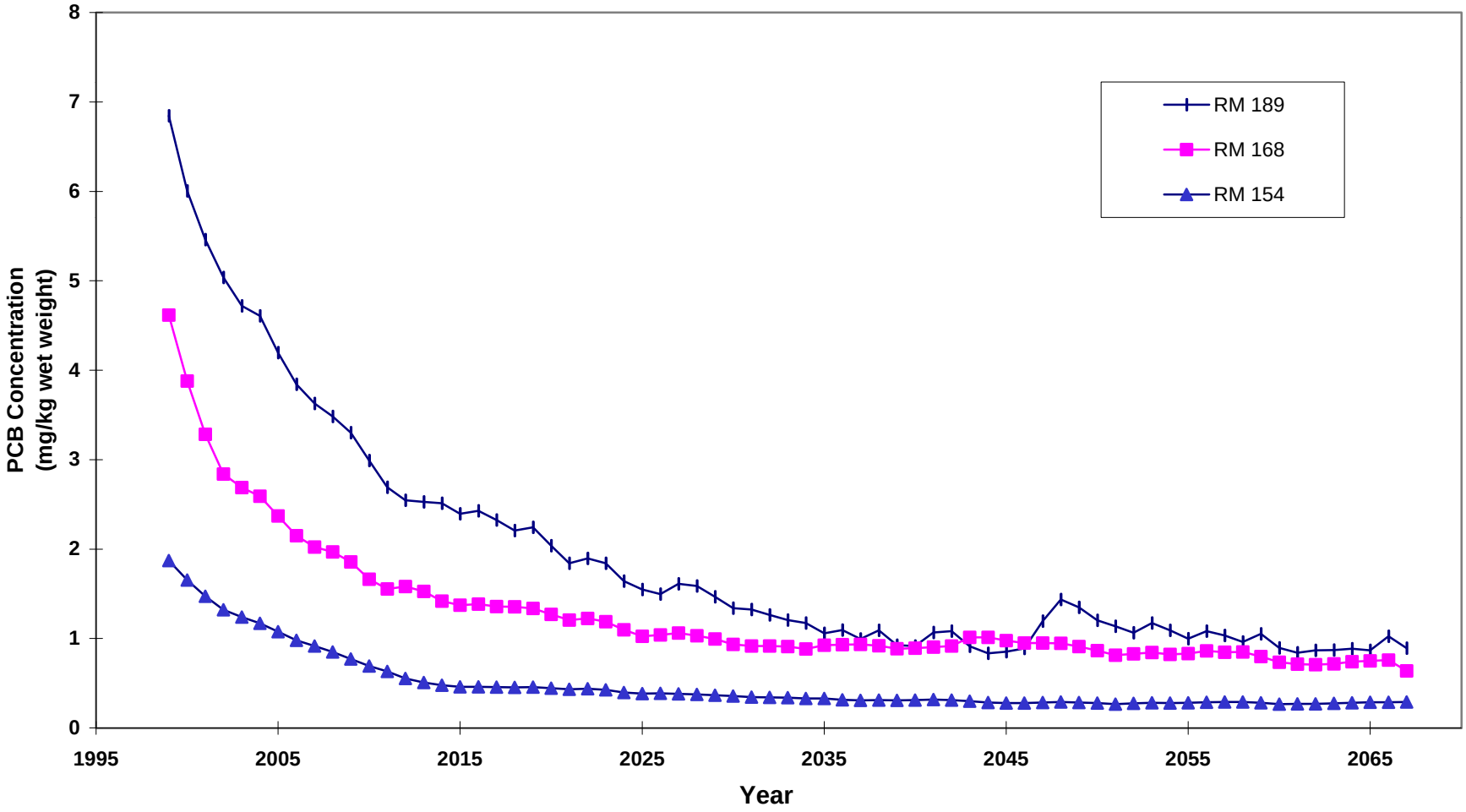
Table 5-38
Comparison of Point Estimate and Monte Carlo Non-cancer Hazard Index Estimates for Fish Ingestion

	Point Estimate HI	Monte Carlo Estimate HI	Monte Carlo Scenario
Central Estimate	7	11.4	Base - 50th percentile
		1.8	Low - 50th percentile
		51.5	High - 50th percentile
High-End Estimate	65	137	Base - 95th percentile
(RME)		18.6	Low - 95th percentile
		366	High - 95th percentile

Table 5-39
Comparison of Point Estimate and Monte Carlo Cancer Risk Estimates for Fish Ingestion

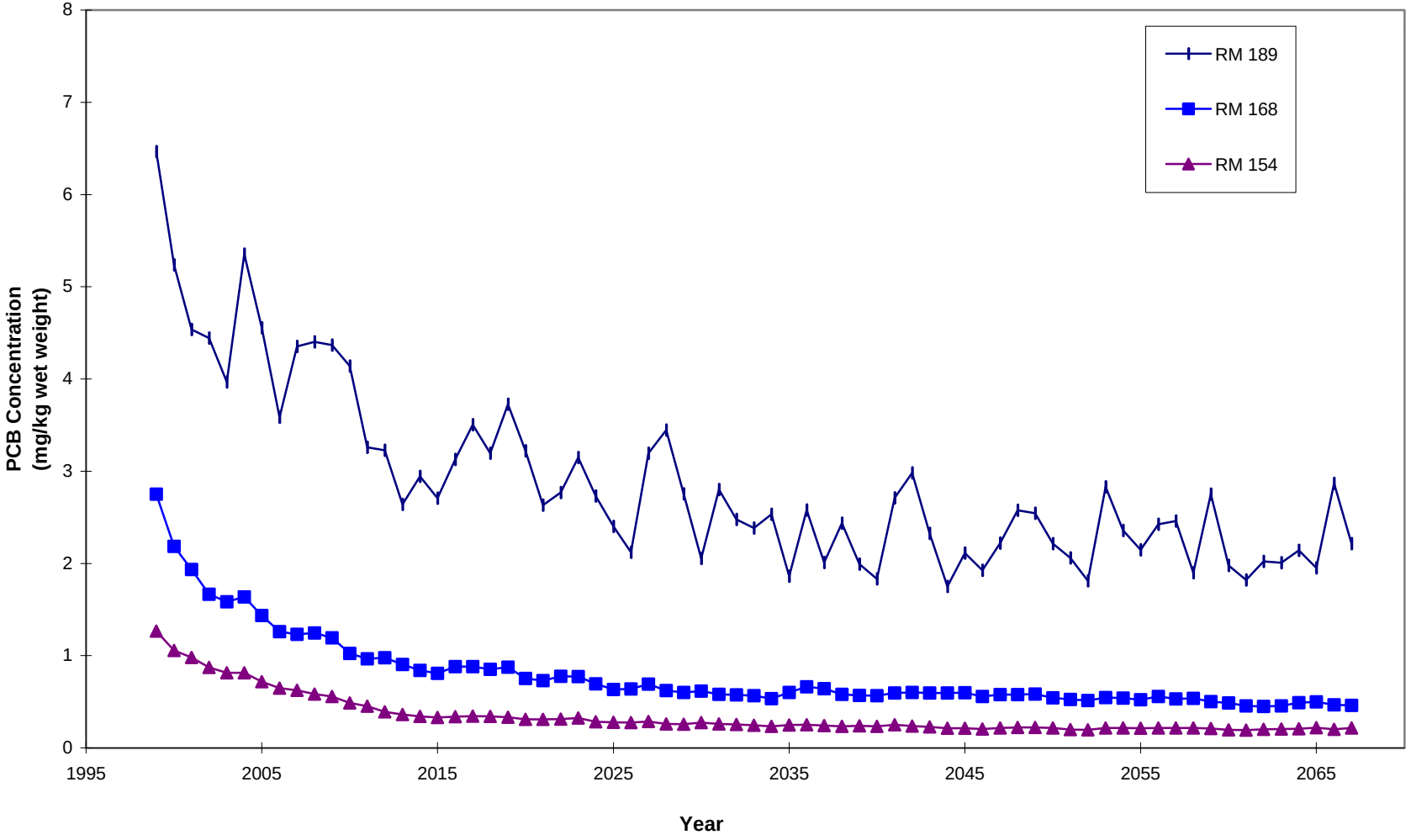
	Point Estimate	Monte Carlo Estimate	Monte Carlo Scenario
Central Estimate	1.2×10^{-5}	6.4×10^{-5}	Base - 50th percentile
		9.7×10^{-6}	Low - 50th percentile
		4.1×10^{-4}	High - 50th percentile
High-End Estimate	5.8×10^{-4}	8.7×10^{-4}	Base - 95th percentile
(RME)		1.1×10^{-4}	Low - 95th percentile
		3.1×10^{-3}	High - 95th percentile

Figure 2-1
PCB Concentration in Brown Bullhead
Modeled Mean Annual



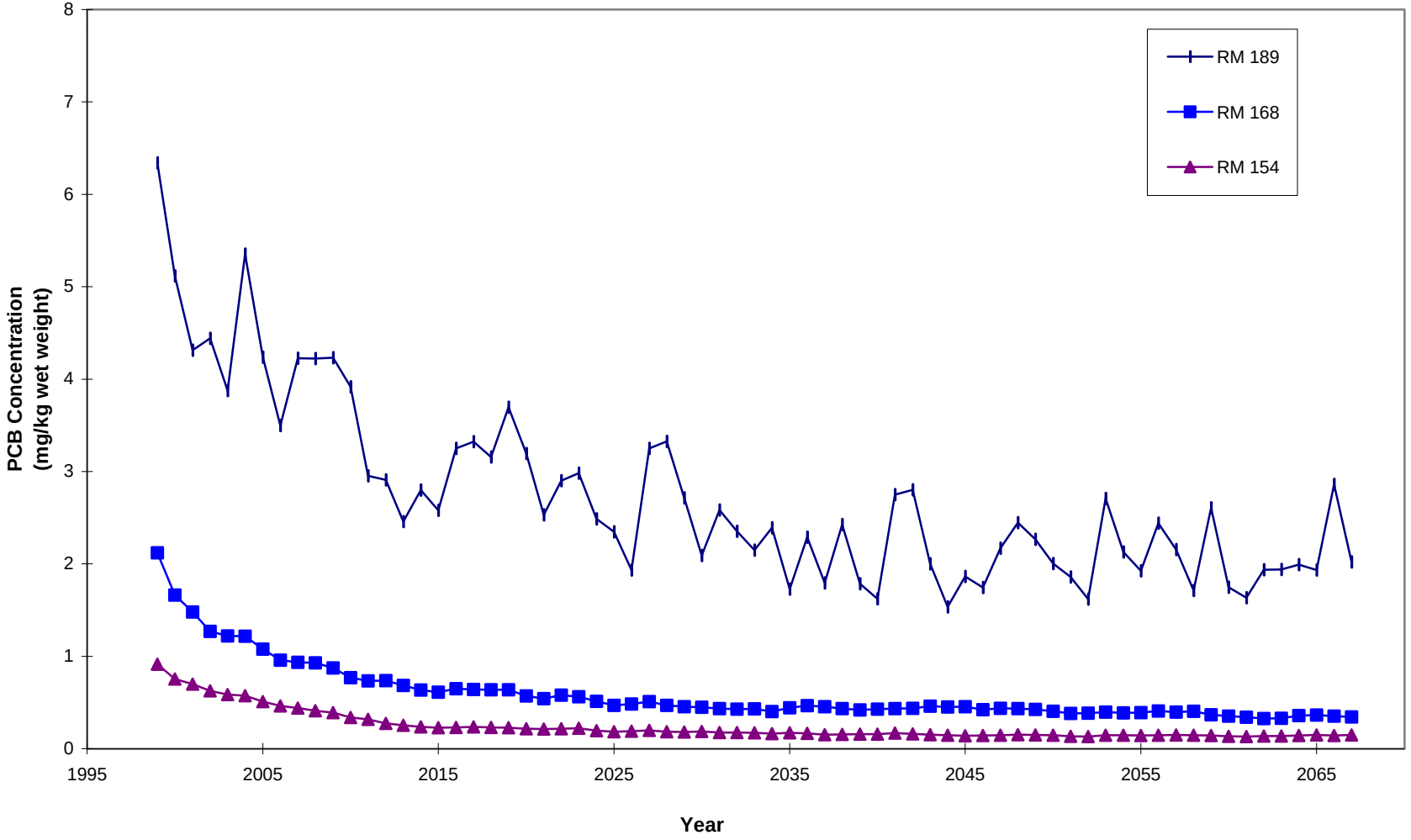
Modeled arithmetic mean values from FISHRAND in RBMR (USEPA, 2000a)

Figure 2-2
PCB Concentration in Largemouth Bass
Mean Annual Averages



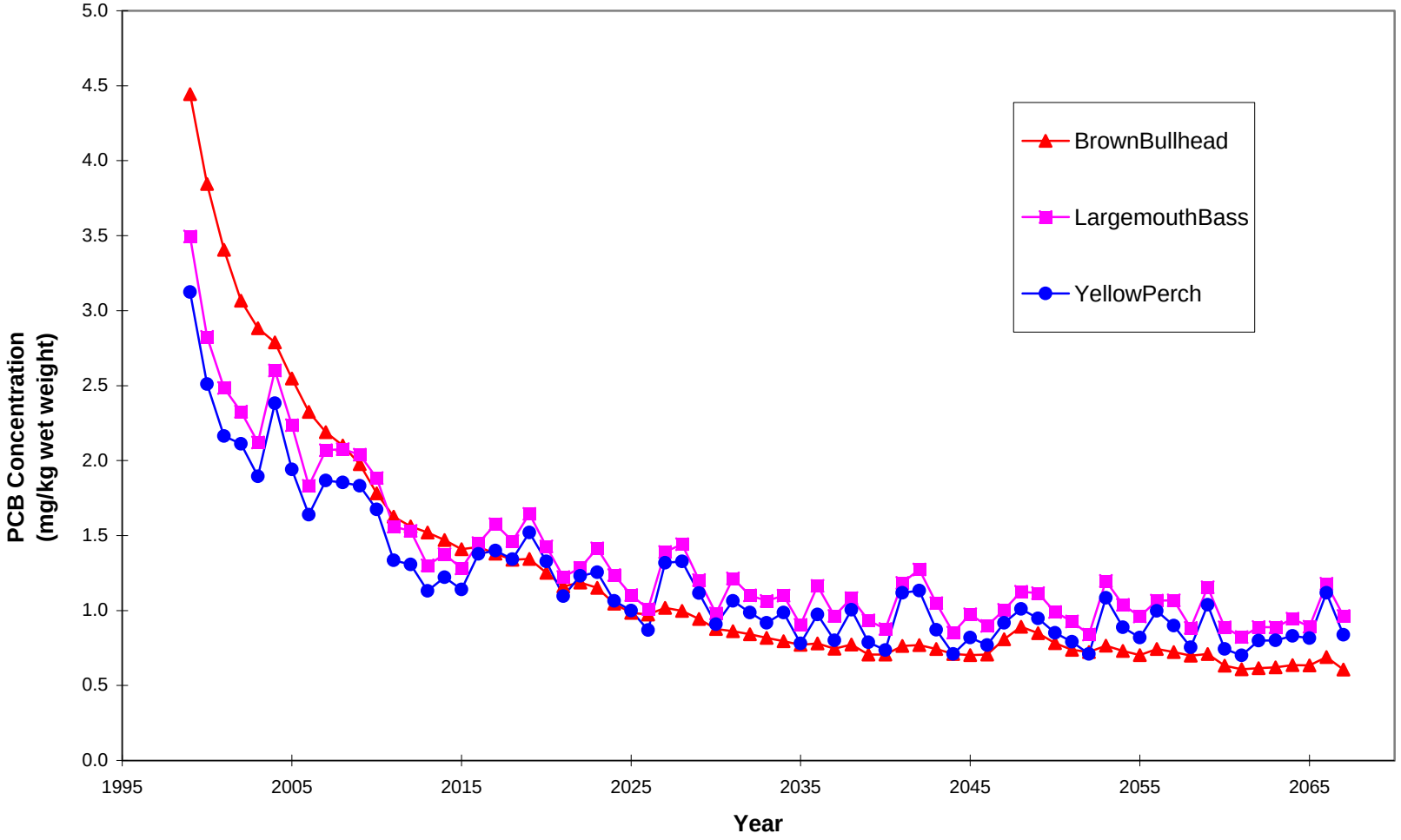
Note: Modeled arithmetic mean from FISHRAND in RBMR (USEPA, 2000a)

Figure 2-3
PCB Concentration in Yellow Perch
Mean Annual Averages



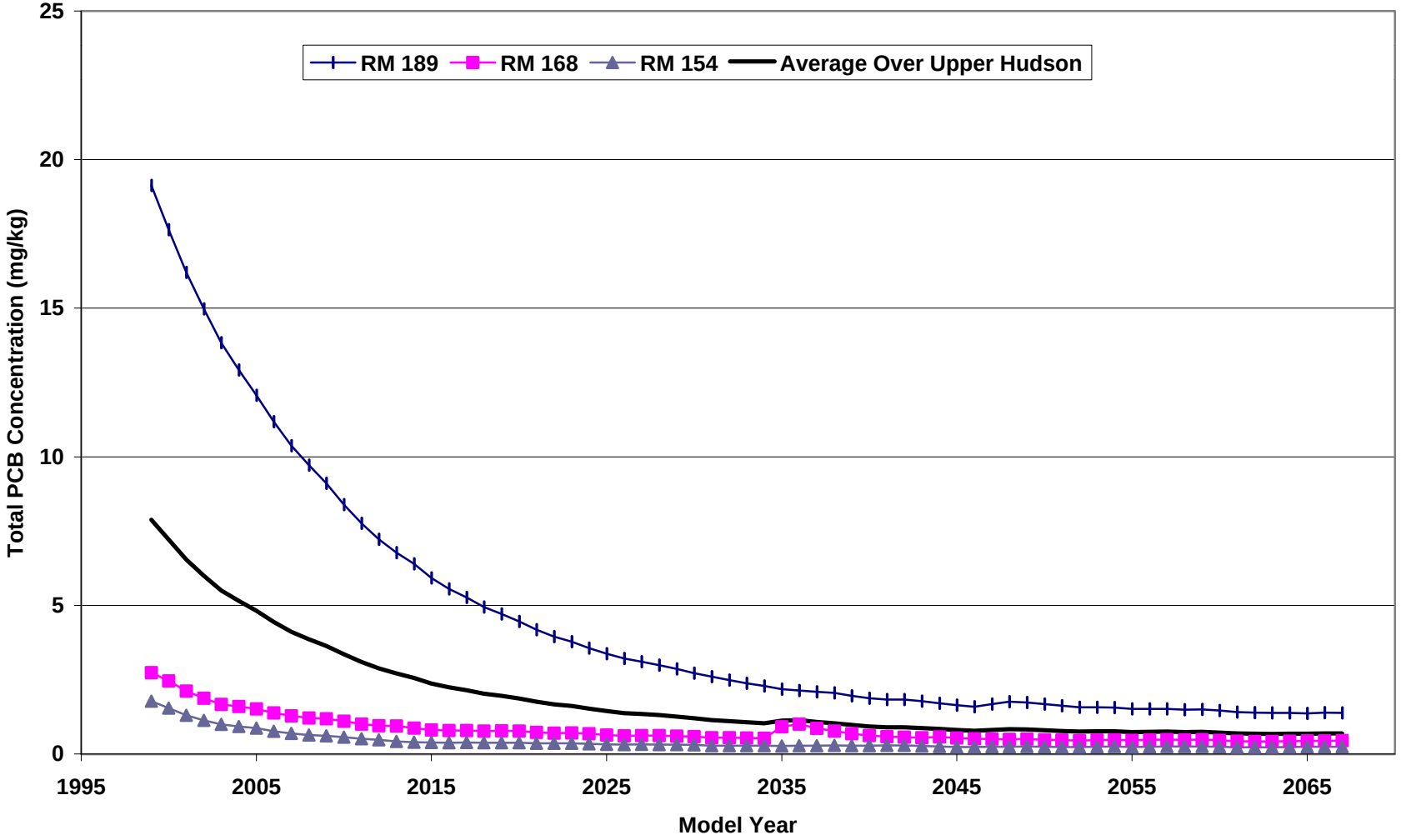
Note: Modeled arithmetic mean from FISHRAND in RBMR (USEPA, 2000a)

Figure 2-4
Mean Annual PCB Concentration by Species
Averaged Over 3 Locations



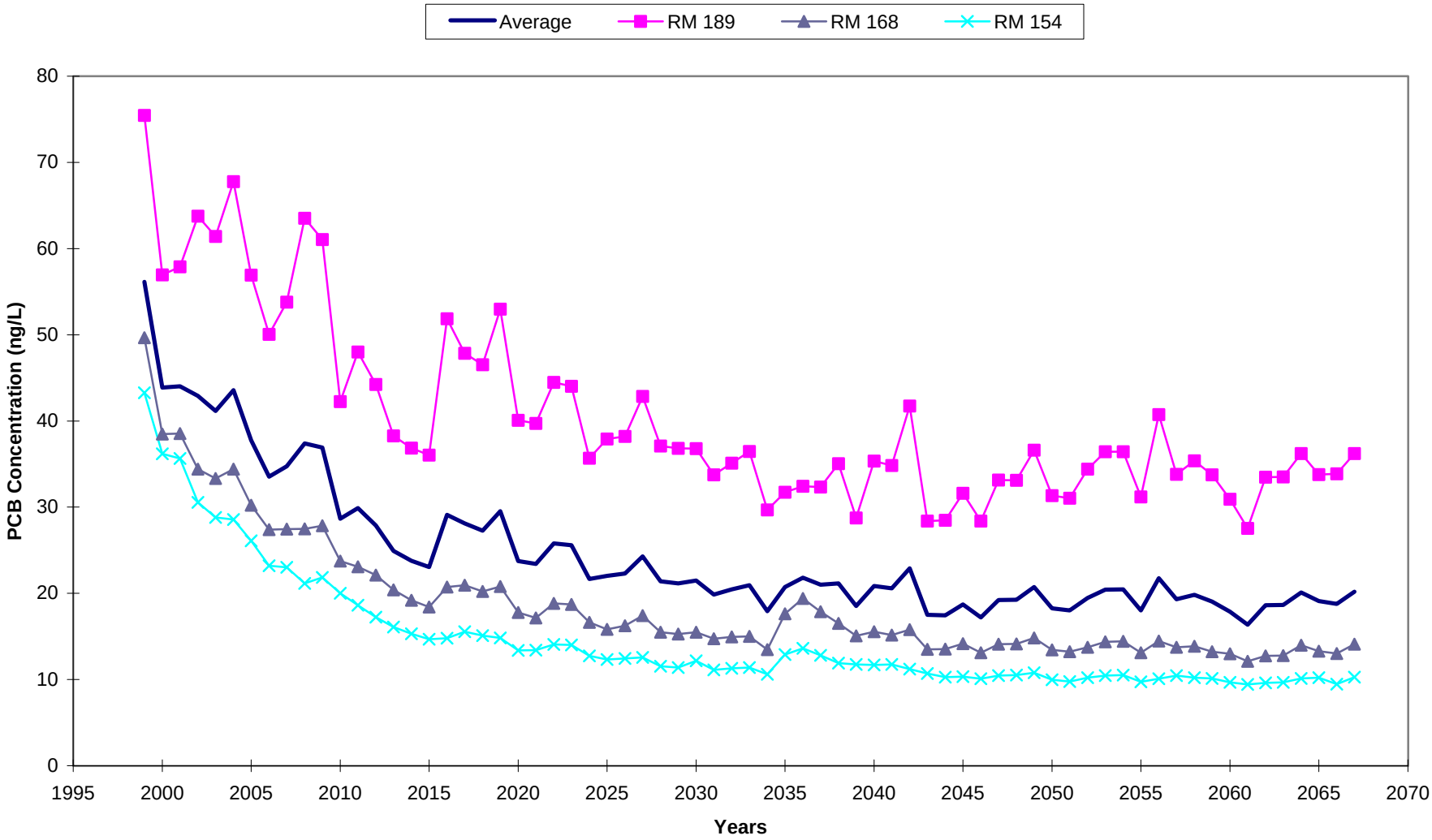
TAMS/Gradient Corporation

Figure 2-5
Total PCB Concentrtation in Surface (0 - 4 cm.) Sediment
Weighted Cohesive and Non-Cohesive Results*



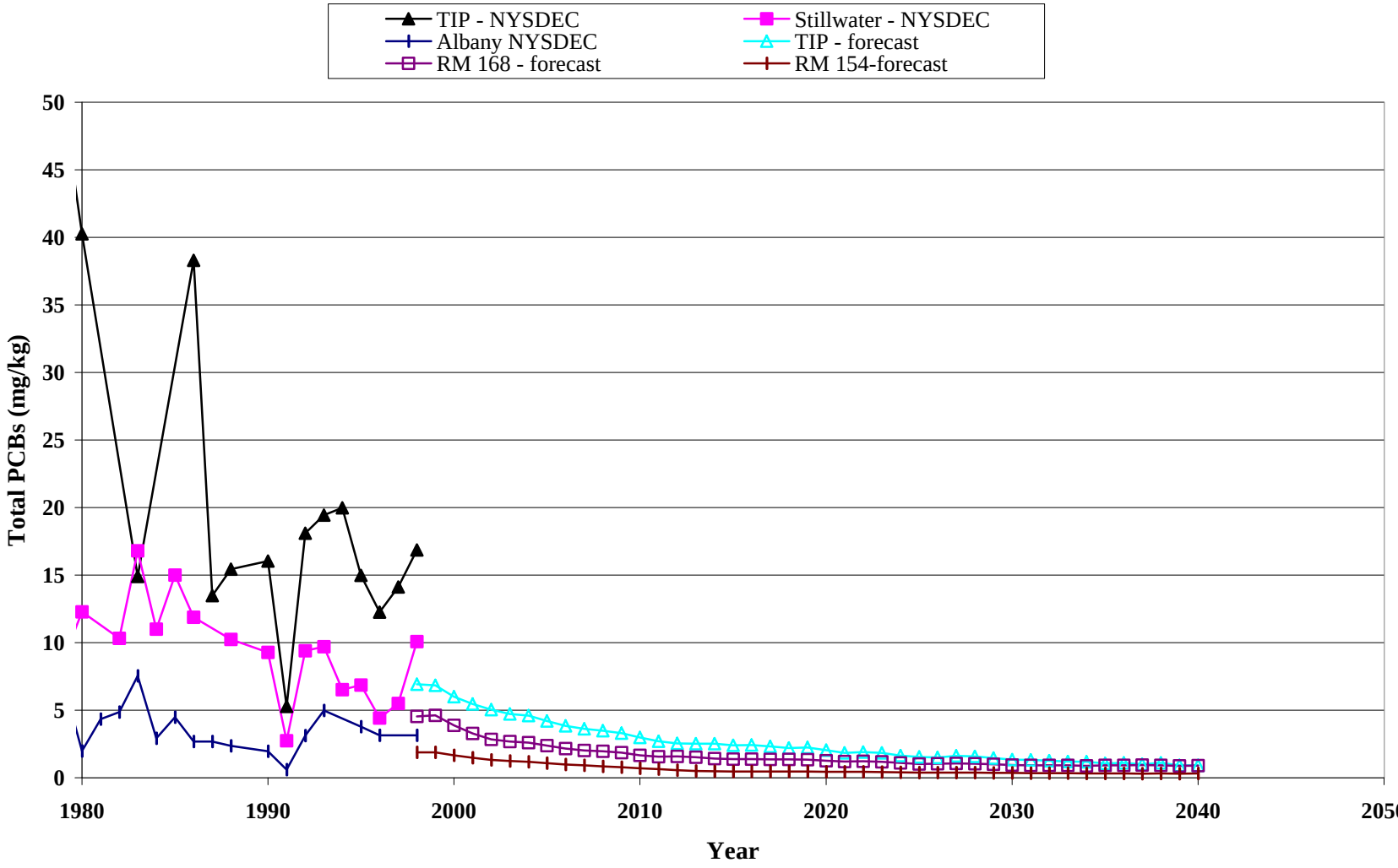
*Sediment data are weighted average of cohesive (75%) and noncohesive (25%) sediment classes from RBMR (USEPA, 2000a)

Figure 2-6
Modeled Water Column Total PCB Concentration (1999 - 2067)
Constant Source Boundary Condition



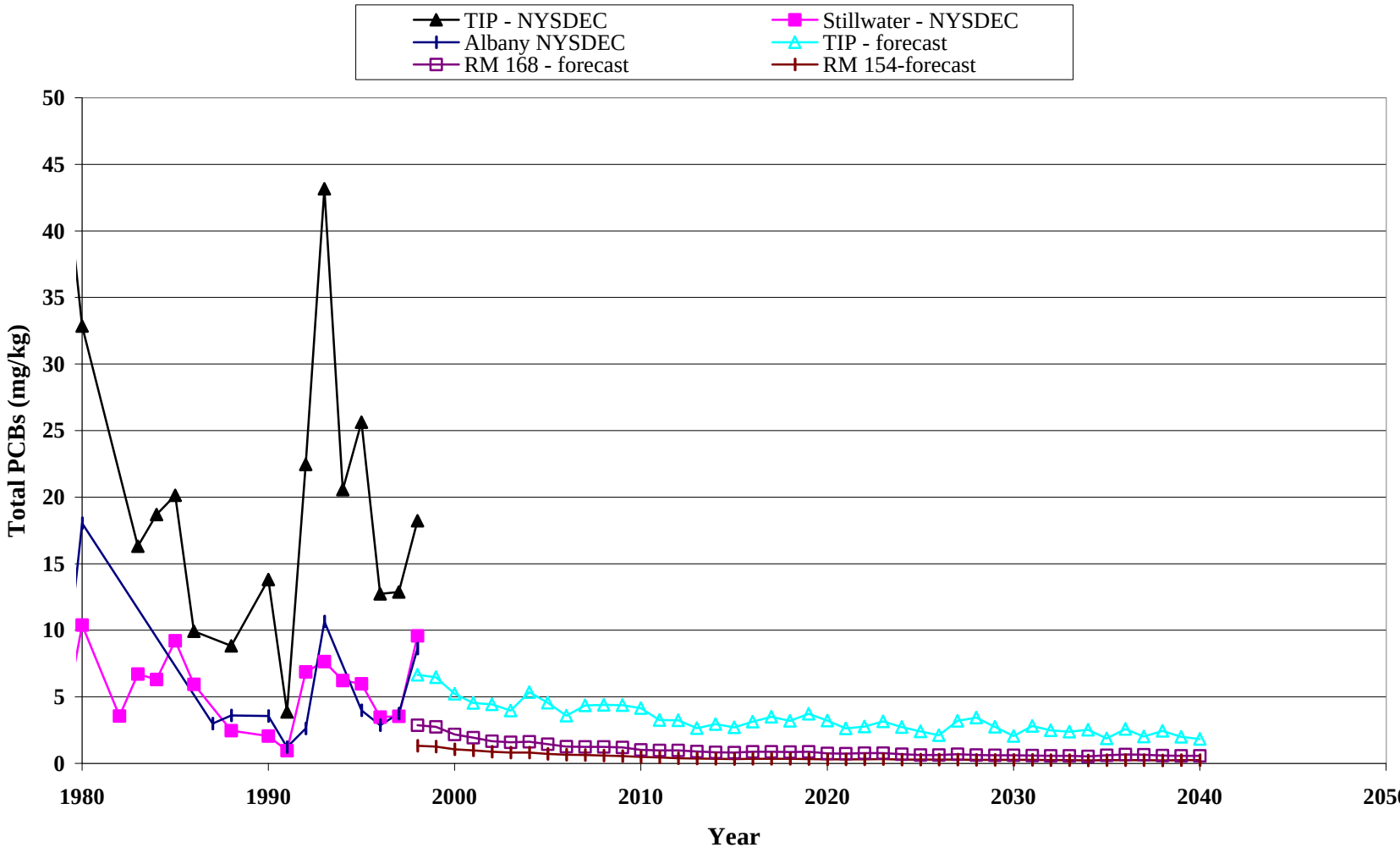
TAMS/Gradient Corporation

Figure 2-7
Comparison of NYSDEC Annual Averages and
Model Forecast Total PCBs in Brown Bullhead



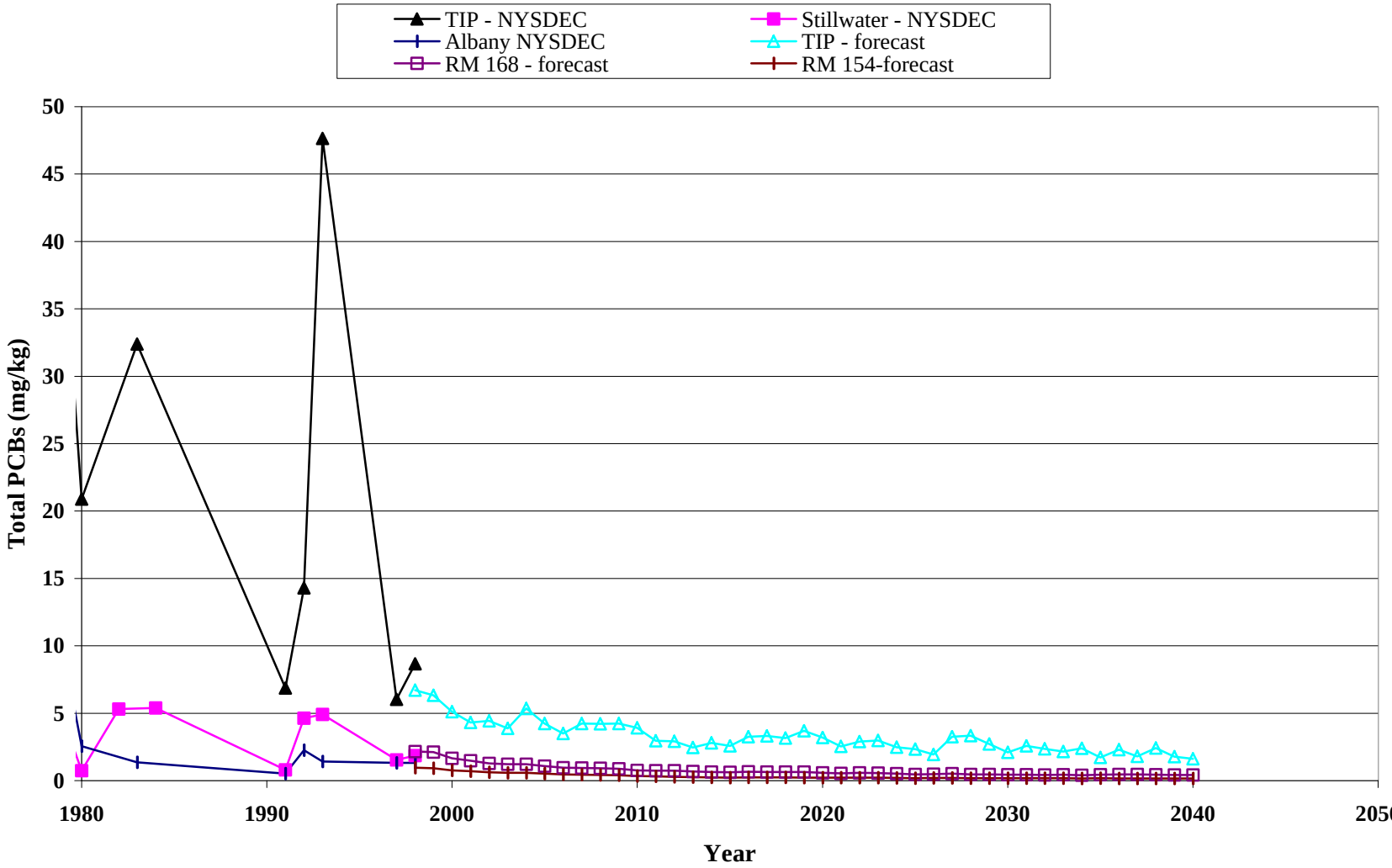
TAMS/Gradient Corporation

Figure 2-8
Comparison of NYSDEC Annual Averages and
Model Forecast Total PCBs in Largemouth Bass



TAMS/Gradient Corporation

Figure 2-9
Comparison of NYSDEC Annual Averages and
Model Forecast Total PCBs in Yellow Perch



TAMS/Gradient Corporation

Figure 3-1
Diagram of Monte Carlo Simulation Process

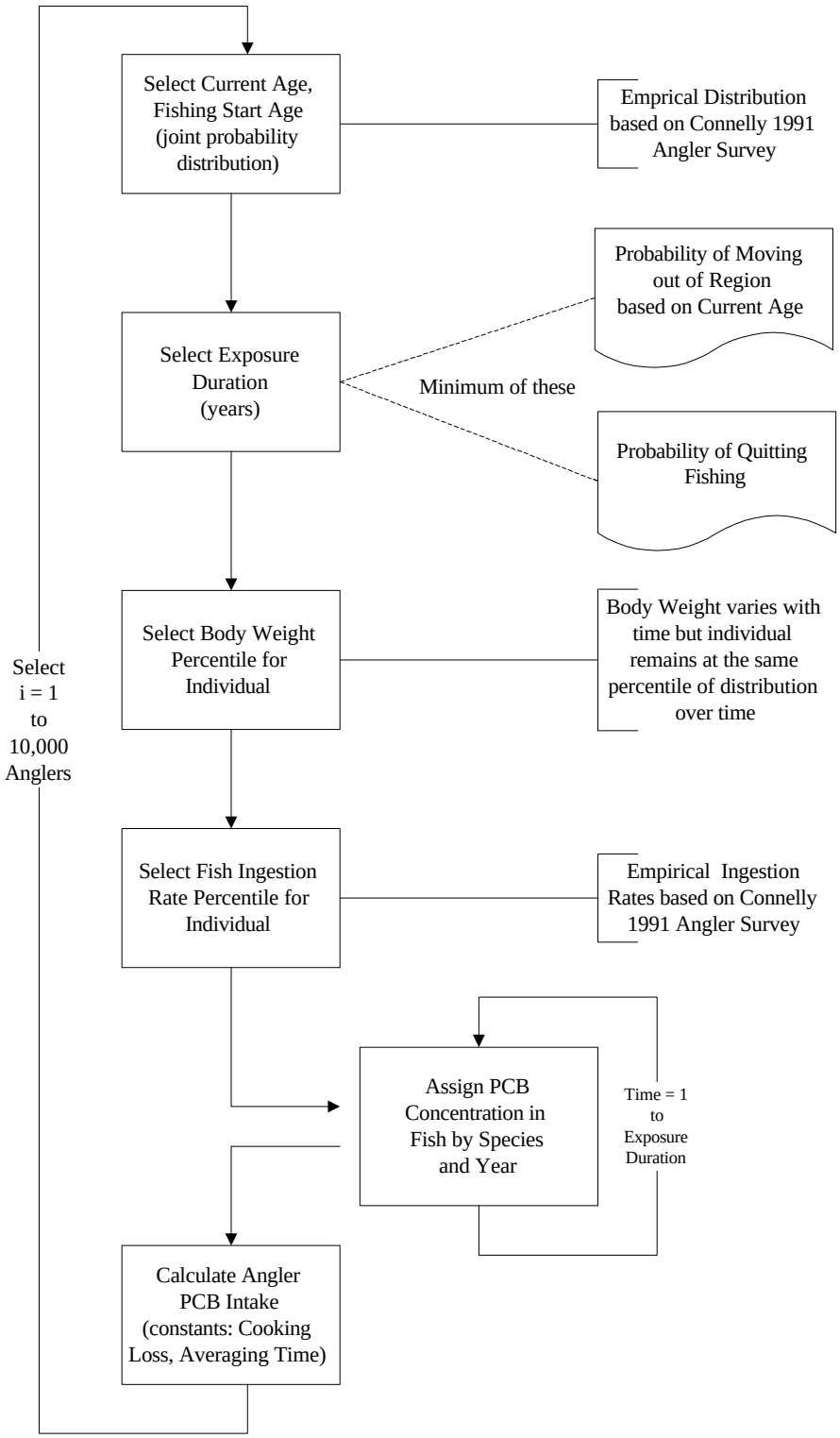


Figure 3-2a
Lognormal Probability Plot - Respondents (N=226)

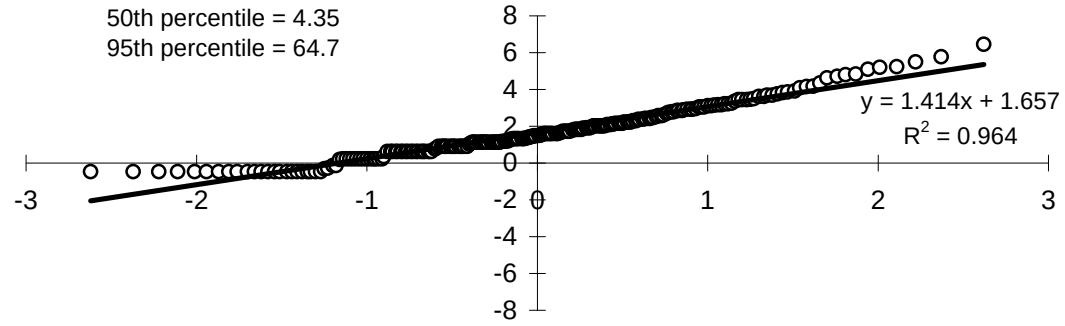


Figure 3-2b
Lognormal Probability Plot - Non-Respondents (N=55)

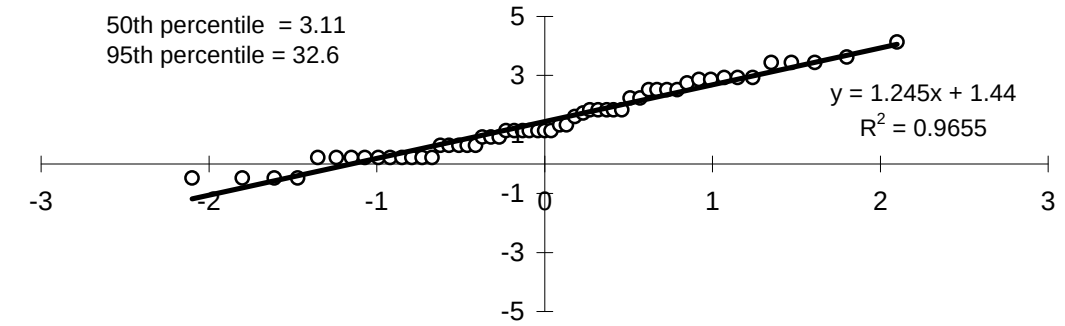
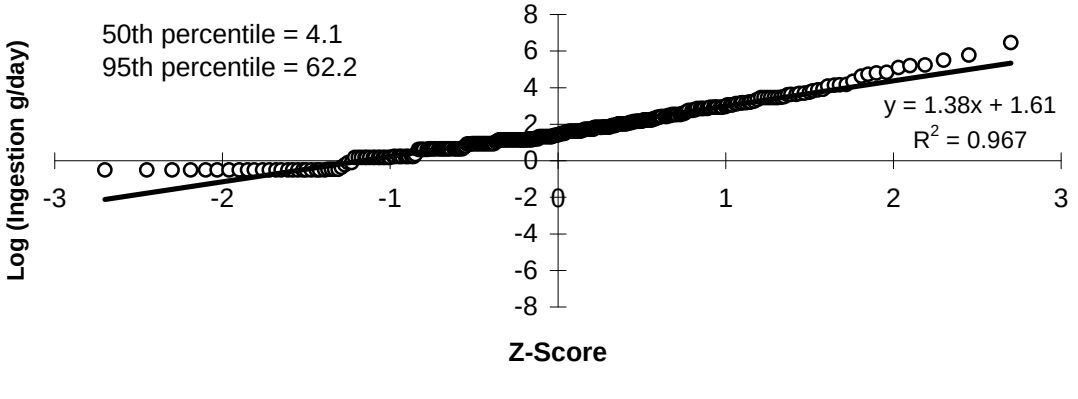


Figure 3-2c
Lognormal Probability Plot
Combined Respondent + Non-Respondent (N=281)



Source: 1991 NY Angler Survey (Connelly et al., 1992).

Figure 3-3a
Frequency Histogram of Self-Caught Fish Ingestion - New York (Connelly et al., 1992)

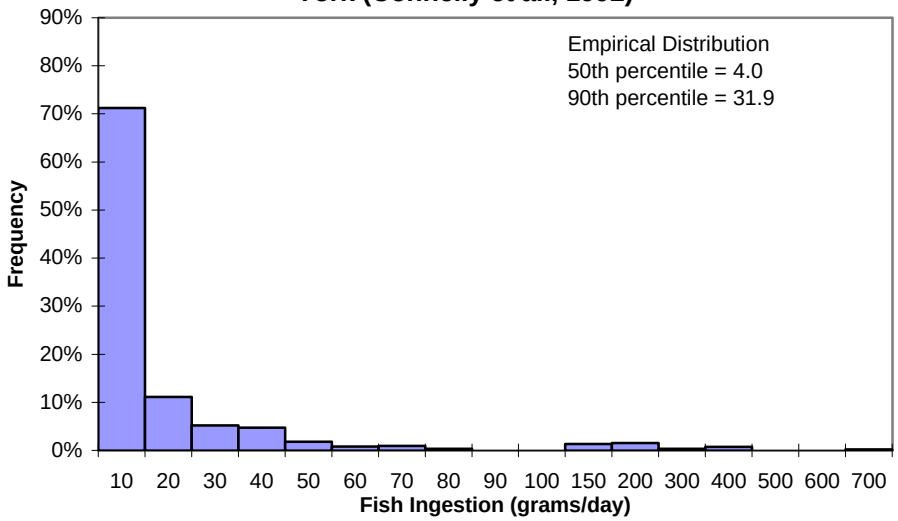


Figure 3-3b
Frequency Histogram of Recreational Fish Ingestion - Lake Ontario (Connelly et al., 1996)

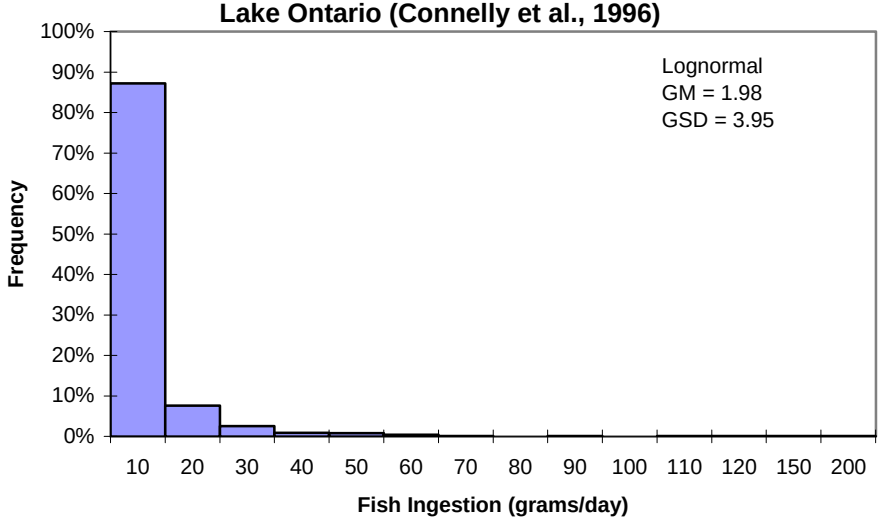


Figure 3-3c
Frequency Histogram of Recreational Fish Ingestion - Michigan (West et al., 1989)

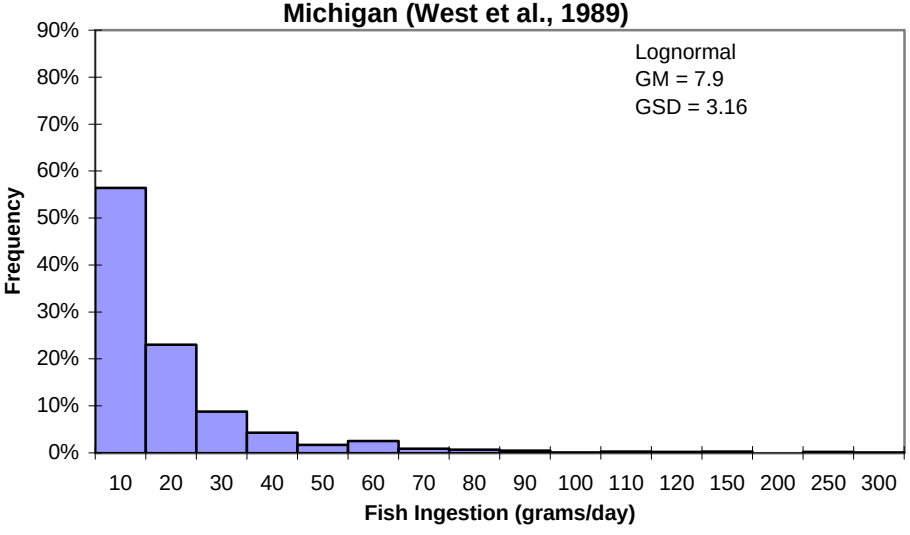


Figure 3-3d
Frequency Histogram of Self-Caught Fish Ingestion - Maine (Elbert et al., 1993)

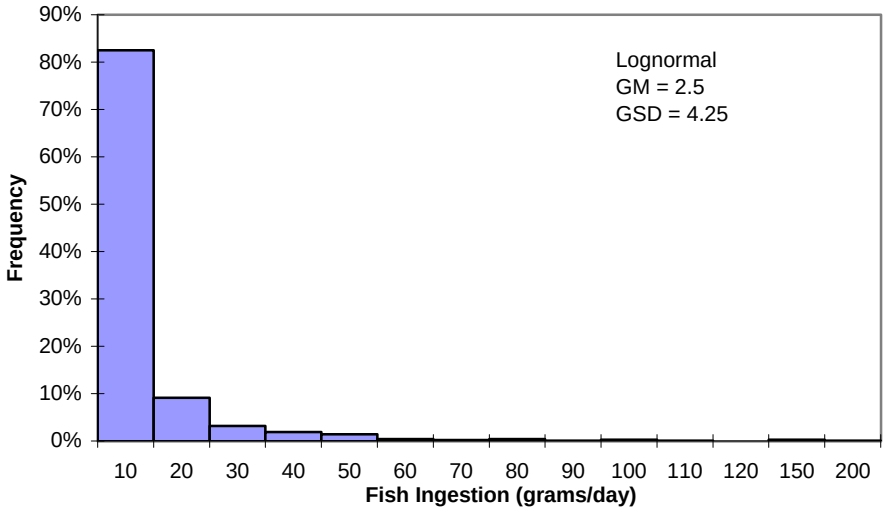


Figure 3-4a
Fishing Cessation -- Number of Years Until Angler Will Cease Fishing (Derived)

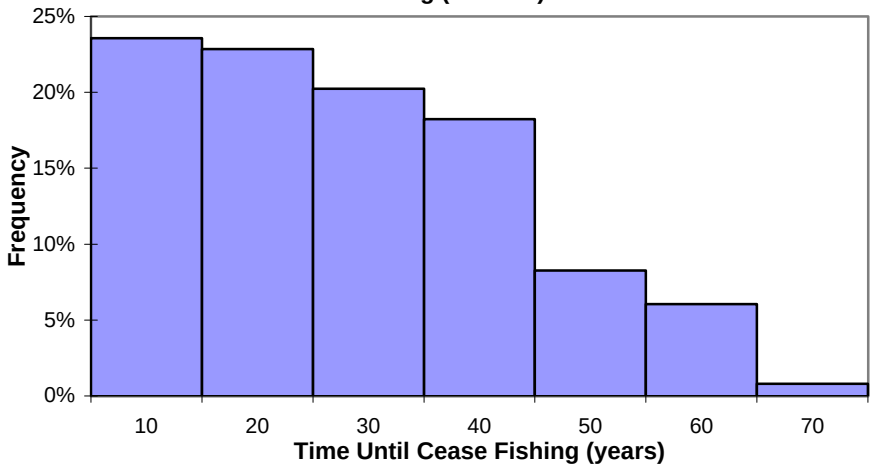


Figure 3-4b
Age at Which Angler Respondent Reported Began Fishing

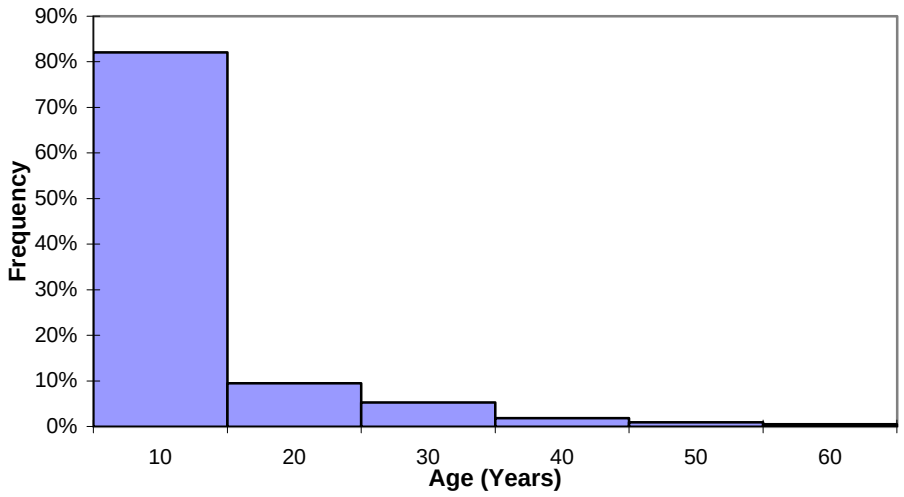


Figure 3-4c
Current Age of Anglers When Responded to Survey

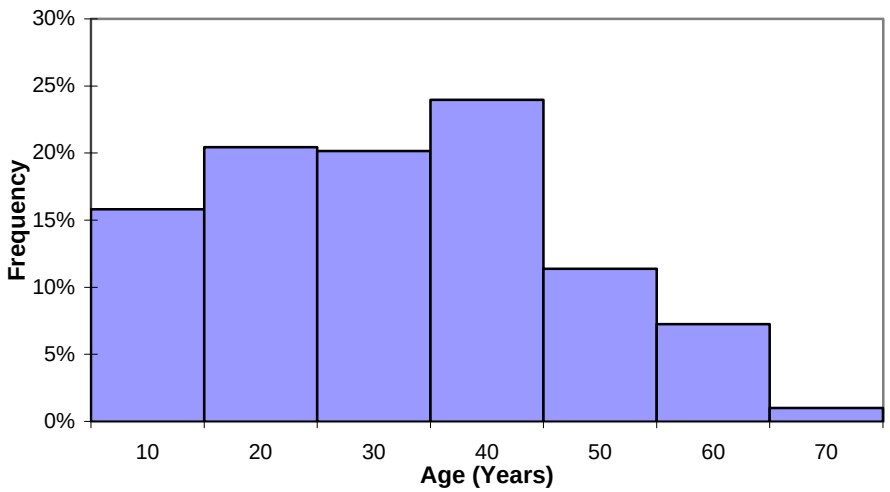
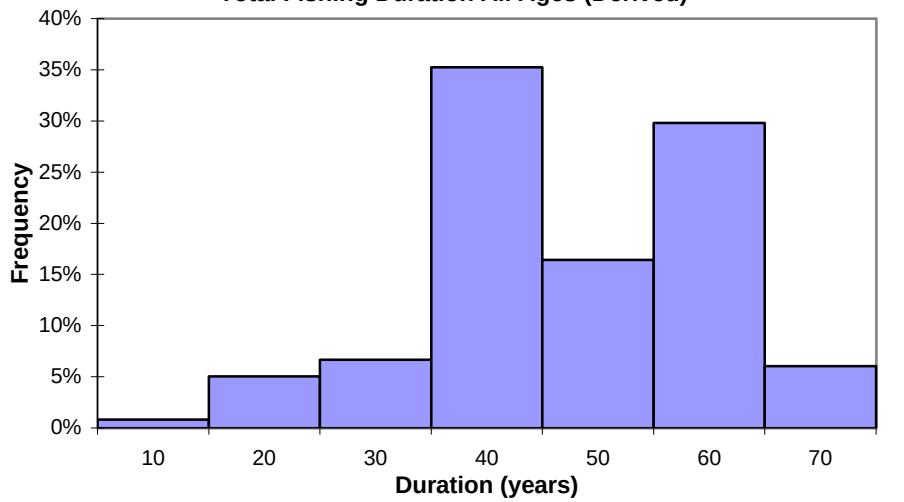
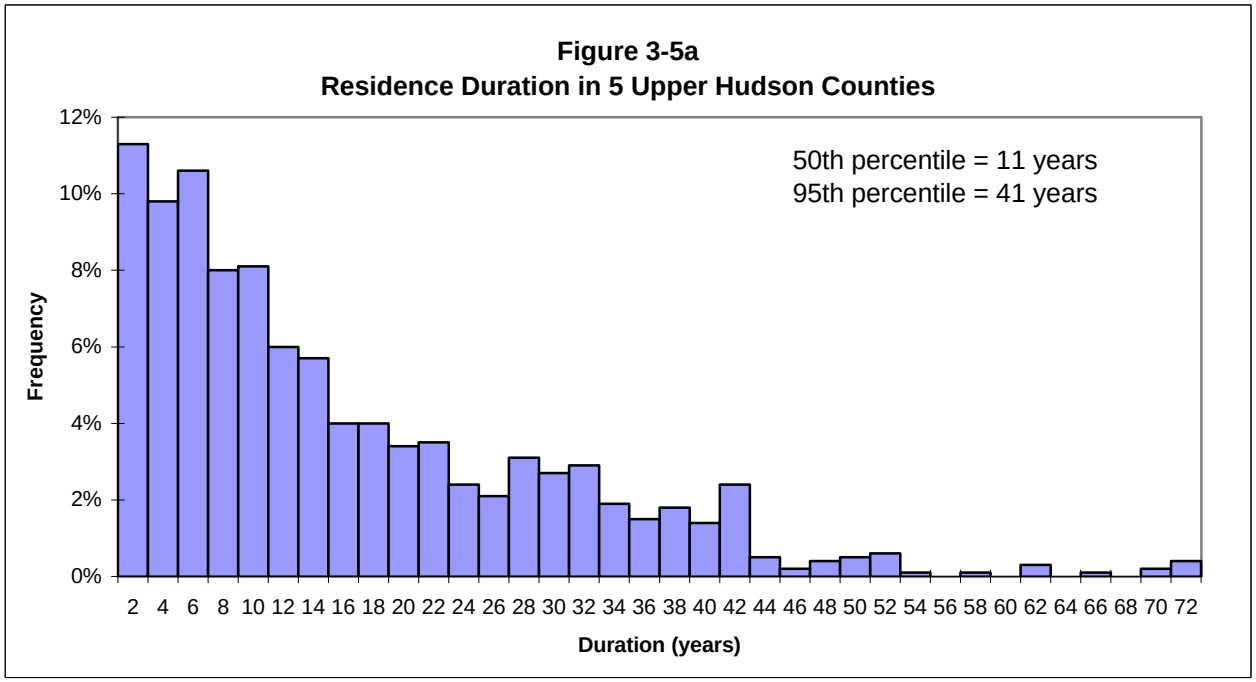


Figure 3-4d
Total Fishing Duration All Ages (Derived)



Source: Distributions based on 1991 NY Angler Survey (Connelly et. al., 1992).



Source: Derived using In-Migration data from 1990 Census (see text).

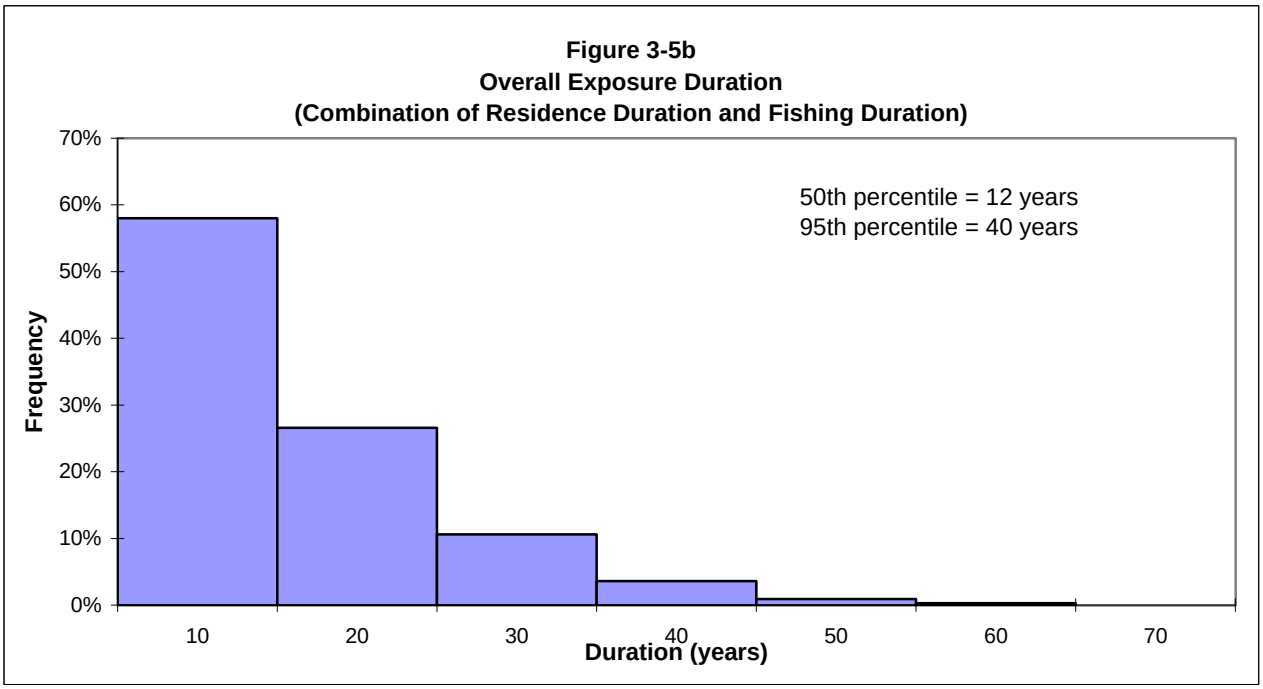


Figure 5-1a
Monte Carlo Estimate Non-Cancer Hazards
Base Case Scenario

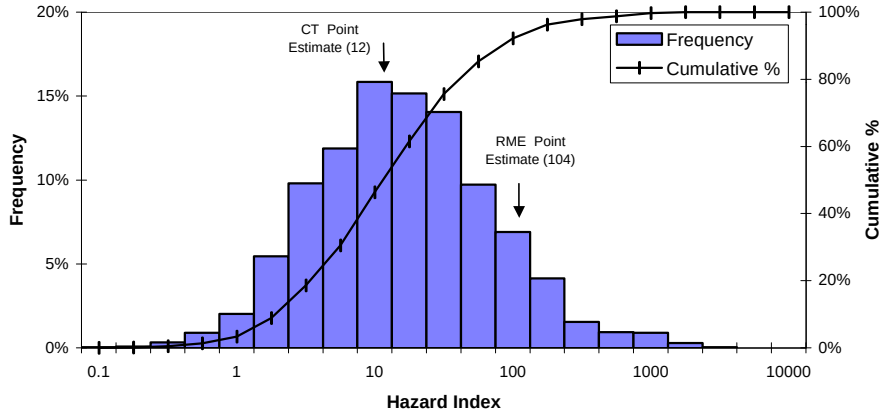


Figure 5-1b
Monte Carlo Estimate Non-Cancer Hazards
High End Exposure Duration

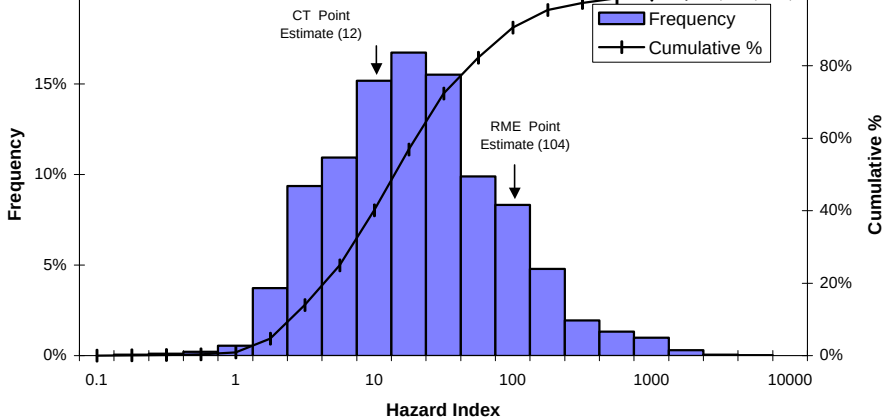


Figure 5-1c
Monte Carlo Estimate Non-Cancer Hazards
Maine Fish Ingestion

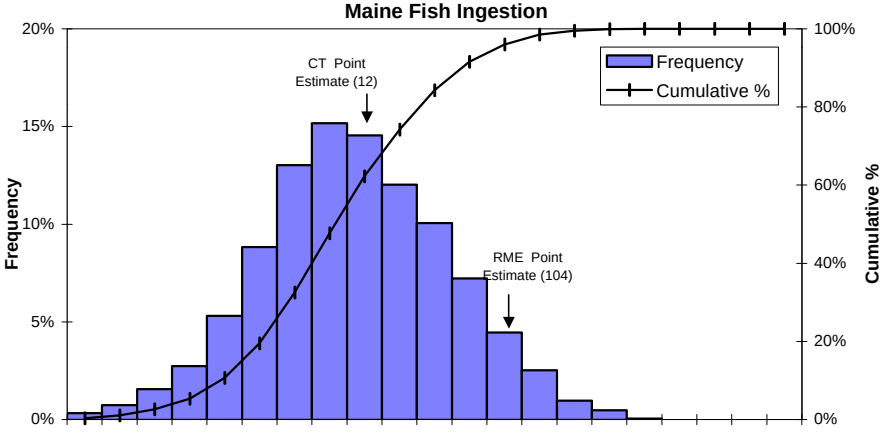


Figure 5-1d
Monte Carlo Estimate Non-Cancer Hazards
High End PCB Concentration (Thompson Is. Pool)

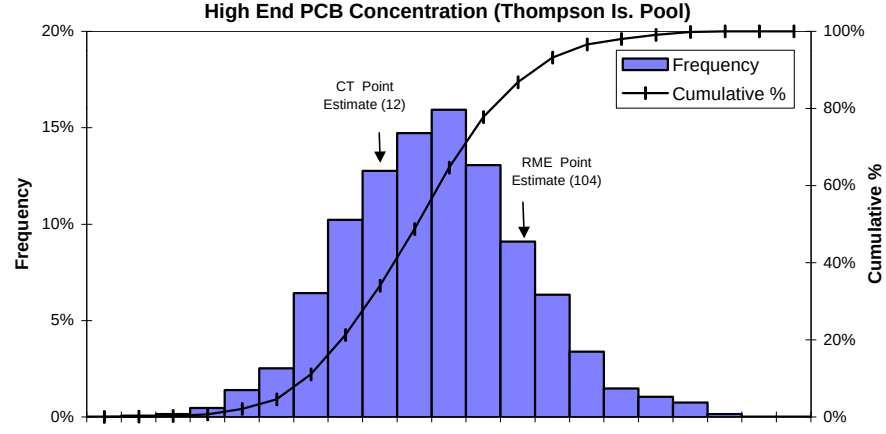


Figure 5-2a
Monte Carlo Estimates of Cancer Risk
Base Case Scenario

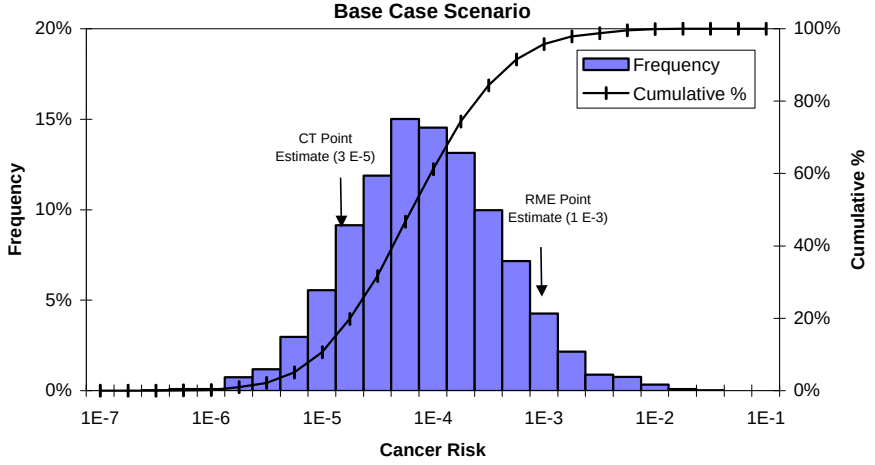


Figure 5-2b
Monte Carlo Estimate of Cancer Risk
High-End Exposure Duration

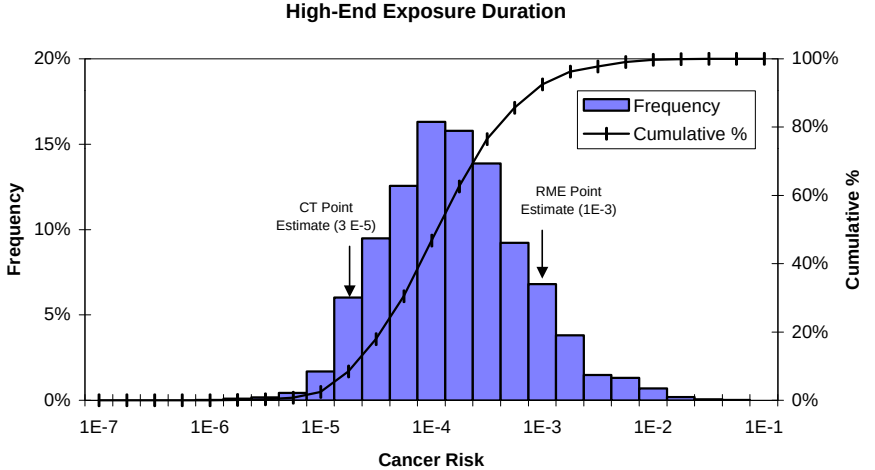


Figure 5-2c
Monte Carlo Estimate of Cancer Risk
Maine Fish Ingestion Rate

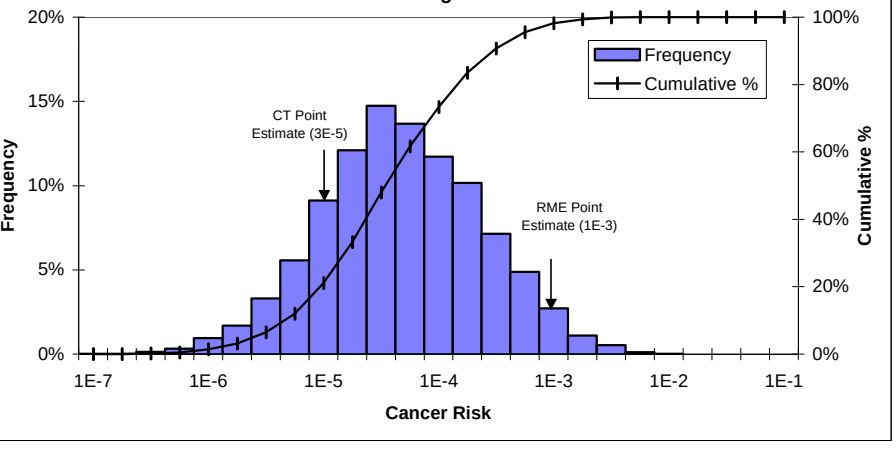


Figure 5-2d
Monte Carlo Estimate of Cancer Risk
High End PCB Concentration (Thompson Is. Pool)

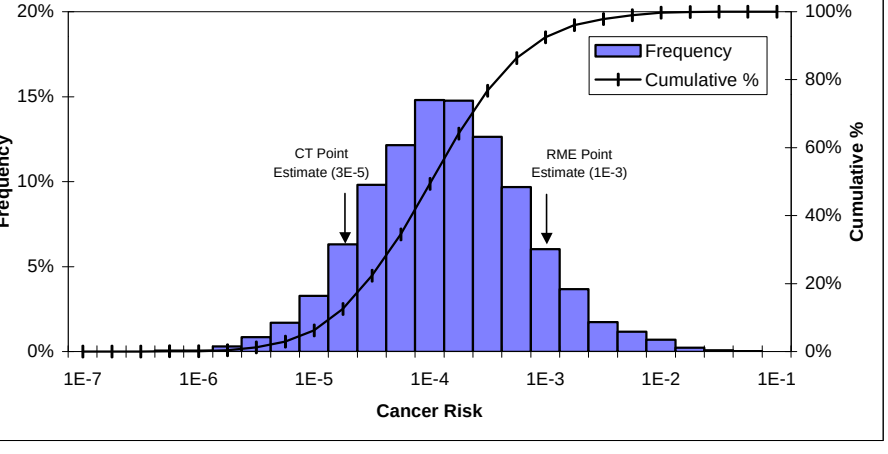


Figure 5-3a
Monte Carlo Non-Cancer Hazard Index Summary
All Scenarios

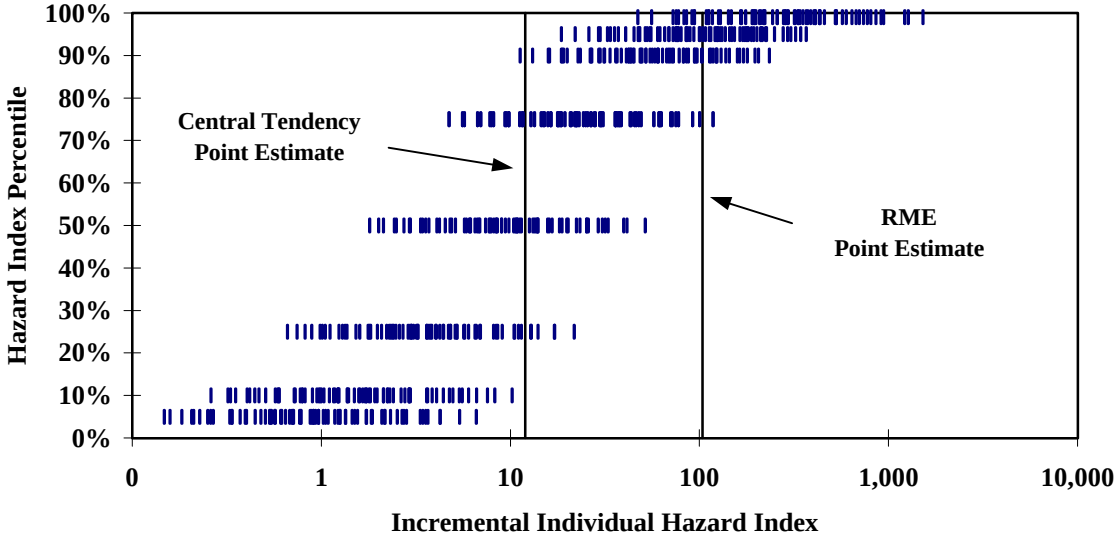
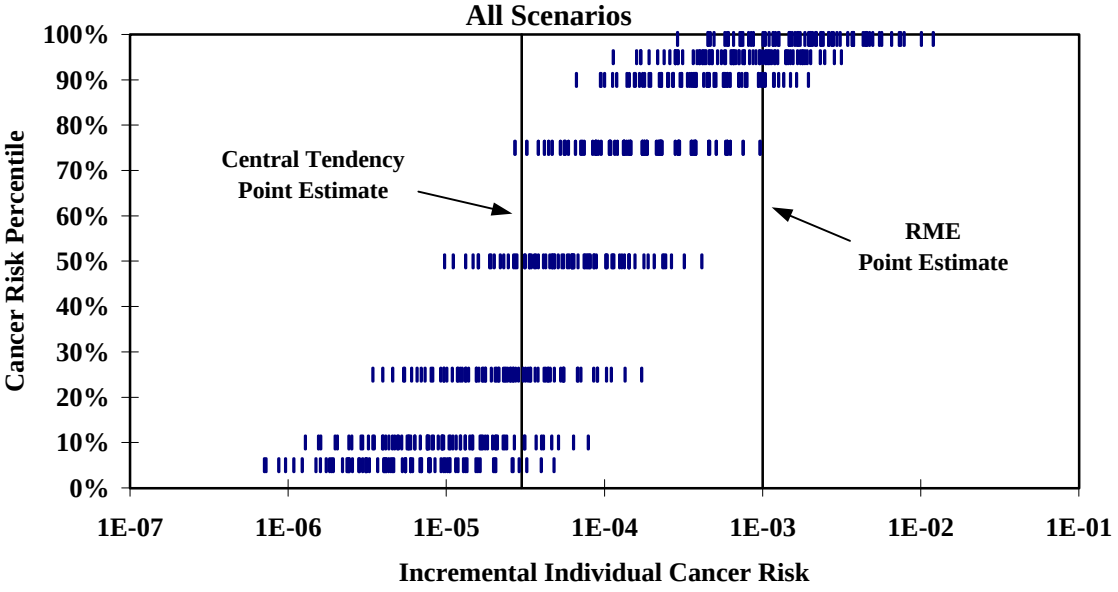
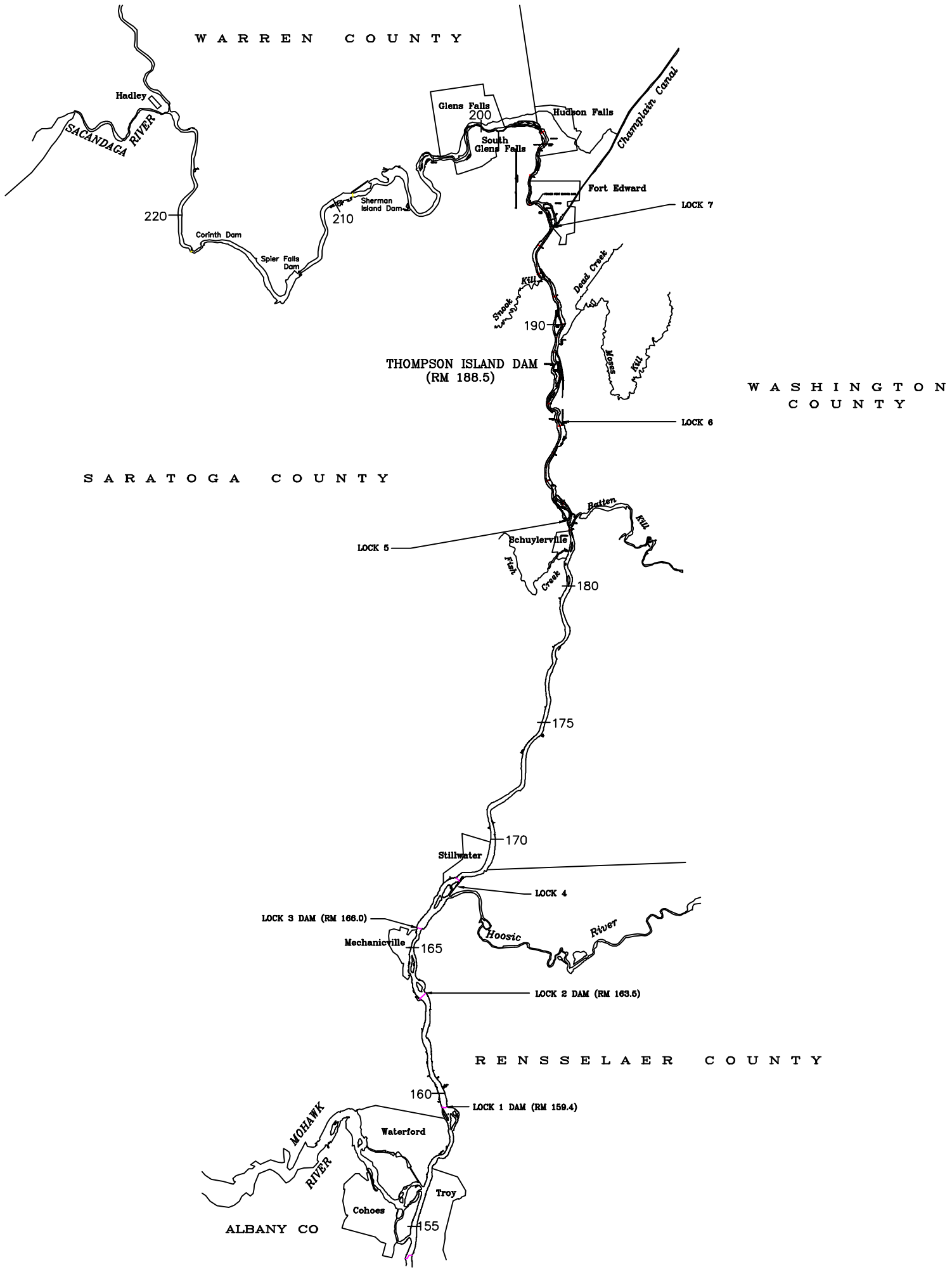


Figure 5-3b
Monte Carlo Cancer Risk Summary
All Scenarios





LEGEND

——180 RIVER MILE (RM) UPSTREAM OF BATTERY

SHORELINES AND RM DESIGNATION ARE APPROXIMATE.

SCALE IN MILES

0 2 4

N

MAP SOURCE: TAMS CONSULTING

DWG: BASEMAP 7/15/99 PROJECT# 8708676

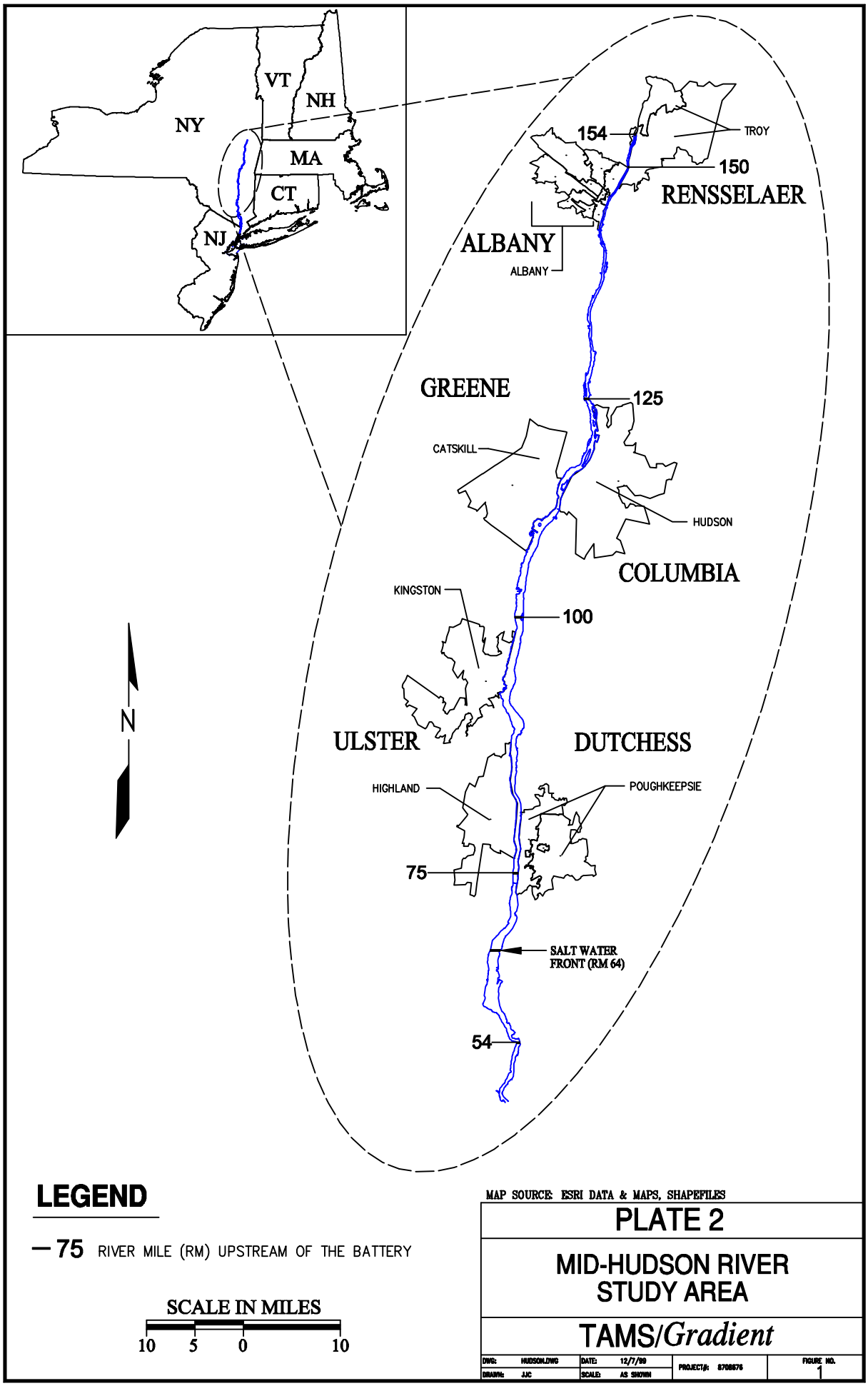
HUDSON RIVER PCB REASSESSMENT RI/FS

PHASE 2: FURTHER SITE CHARACTERIZATION AND ANALYSIS
VOLUME 2E: UPPER HUDSON RISK ASSESSMENT

UPPER HUDSON RIVER STUDY AREA

Gradient CORPORATION

PLATE 1



LEGEND

— 75 RIVER MILE (RM) UPSTREAM OF THE BATTERY

SCALE IN MILES

10 5 0 10

MAP SOURCE: ESRI DATA & MAPS, SHAPEFILES

PLATE 2

MID-HUDSON RIVER STUDY AREA

TAMS/*Gradient*

DWG:	HUDSON.DWG	DATE:	12/7/99	PROJECT#: 6708676	FIGURE NO. 1
DRAWN:	JJC	SCALE:	AS SHOWN		