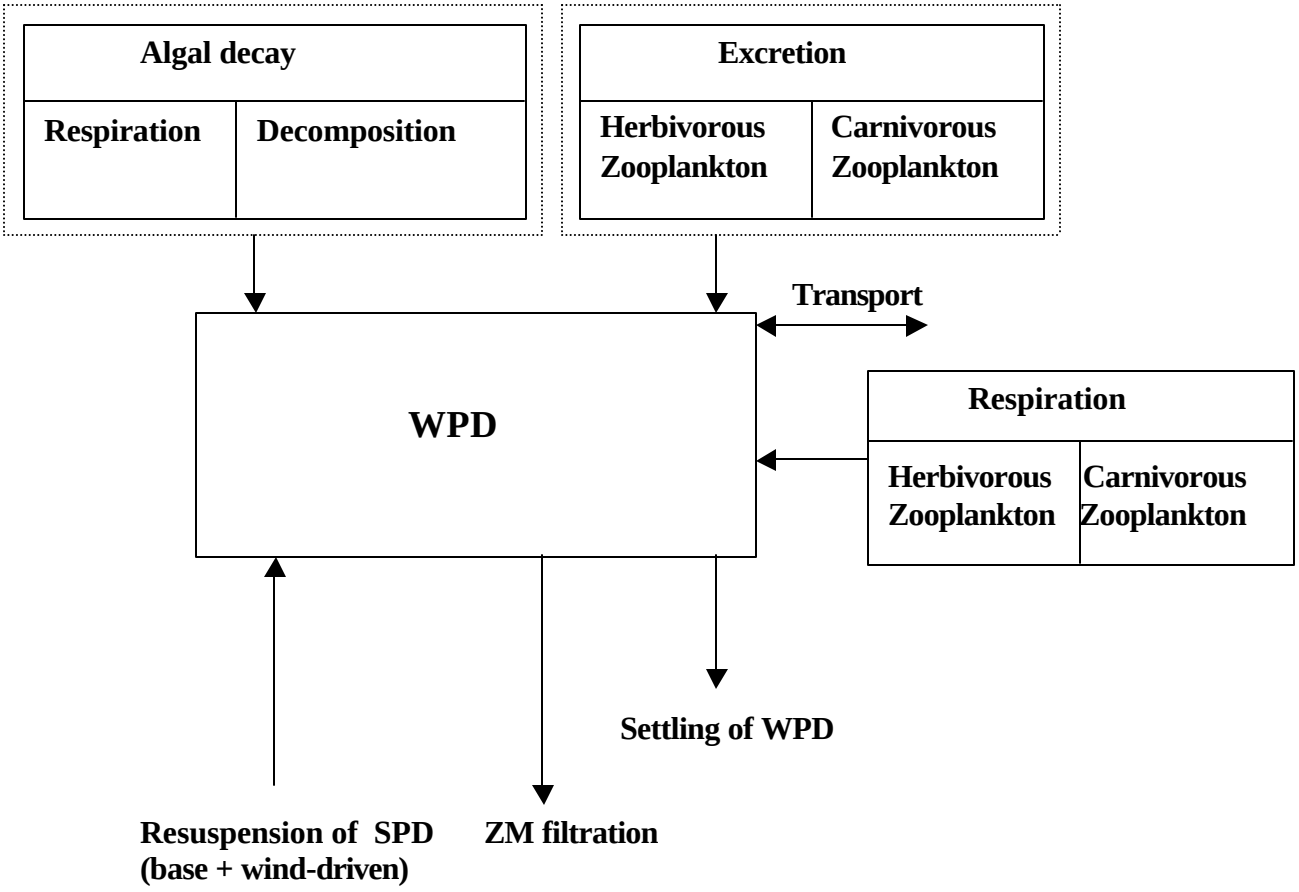
Appendix

Mass Balance Equations

Mass balance for water column Particulate detritus (WPD):



Mass Balance for particulate detritus in the water column:

$$\frac{d(WPD(N))}{dt} =$$

$$-TUPSNK \cdot WPD(N) / DEPTH(N)$$

Settling of WPD

$$+\frac{\left(VUPPB(N) + ONOFF * VUPPW(N)\right) \cdot VOLSED(N) \cdot SPD(N)}{DEPTHS(N) \times V(N)}$$

Resuspension of SPD

$$+\sum_{L} ALOSS1(L,N) \cdot A(L,N)$$

Algal respiration

$$+\sum_{L} ALOSS2(L,N) \cdot A(L,N)$$

Algal decomposition

$$+\sum_{Z1} \frac{RZ1PEX(K1,N) \cdot Z1(K1,N) \cdot fpp}{PSAMIN(1)}$$

Excretion by Herbivorous Zoop.

$$+\sum_{Z2} \frac{RZ2PEX(K2,N) \cdot Z2(K2,N) \cdot fpp}{PSAMIN(1)}$$

Excretion by Carn. Zoop.

$$-VFILT(N) \cdot WPD(N) / V(N)$$

ZM Filtration

$$+\sum_{Z1} Z1LSS1(K1,N) \cdot Z1(K1,N) \cdot fpp$$

Respiration of

1. Herbivorous Zoop.

$$+\sum_{Z2} Z2LSS2(K2,N) \cdot Z2(K2,N) \cdot fpp$$

2. Carnivorous Zoop.

$$+\left[\sum_{J} -Q(N,J)\left(\acute{a}(N,J) \cdot WPD(N) + \hat{a}(N,J) \cdot WPD(J)\right)\right] / V(N)$$

Net advective Transport

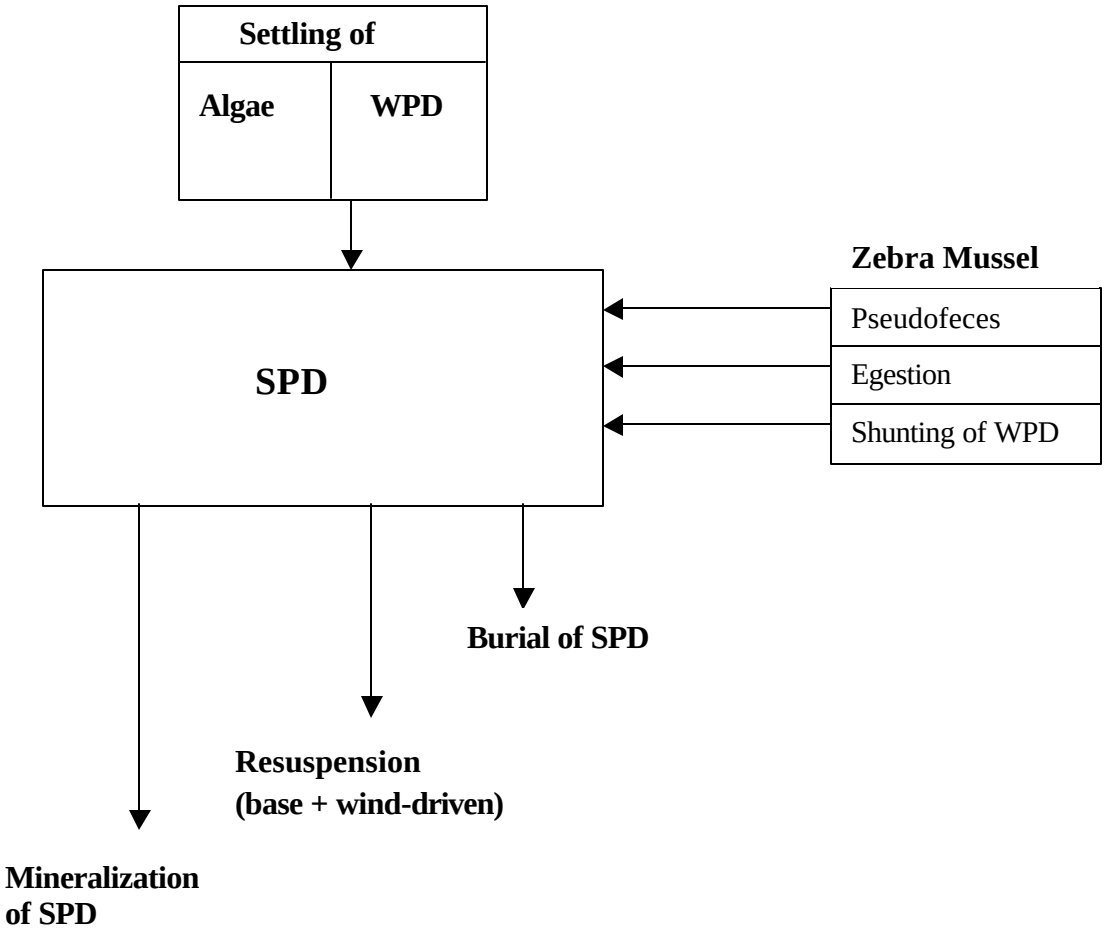
$$+\sum_{J} E'(N,J)\left[(WPD(J) - WPD(N)\right] / V(N)$$

Net Dispersive Flux

$$+\left[\sum_{J} -Q(N,B)\left(\acute{a}(N,B) \cdot WPD(B) + \hat{a}(N,B) \cdot WPD(J)\right)\right] / V(N)$$

Boundary Contribution

Sediments Particulate detritus (SPD):



Mass Balance for Sediment Particulate Detritus (SPD):

$$\frac{d(SPD(N))}{dt} =$$

$$+ \sum_{L} \left(ALOSS3(L,N) \cdot A(L,N) \cdot V(N) \right) / VOLSED(N)$$

Settling of Algae

$$+ \frac{TUPSNK \cdot WPD(N) \cdot V(N)}{DEPTH(N) \times VOLSED(N)}$$

Settling of WPD

$$+ \sum_{Cohort=1}^{3} ZMPF(Cohort, N)$$

Zebra mussel Pseudo feces

$$+ \sum_{Cohort=1}^{3} ZMF(Cohort, N)$$

Zebra mussel Egestion

$$- \left(VUPPB(N) + ONOFF * VUPPW(N) \right) \cdot SPD(N) / DEPTHS(N)$$

Resuspension of SPD

$$- VSSLONG(N) \cdot SPD(N) / DEPTHS(N)$$

Burial of SPD

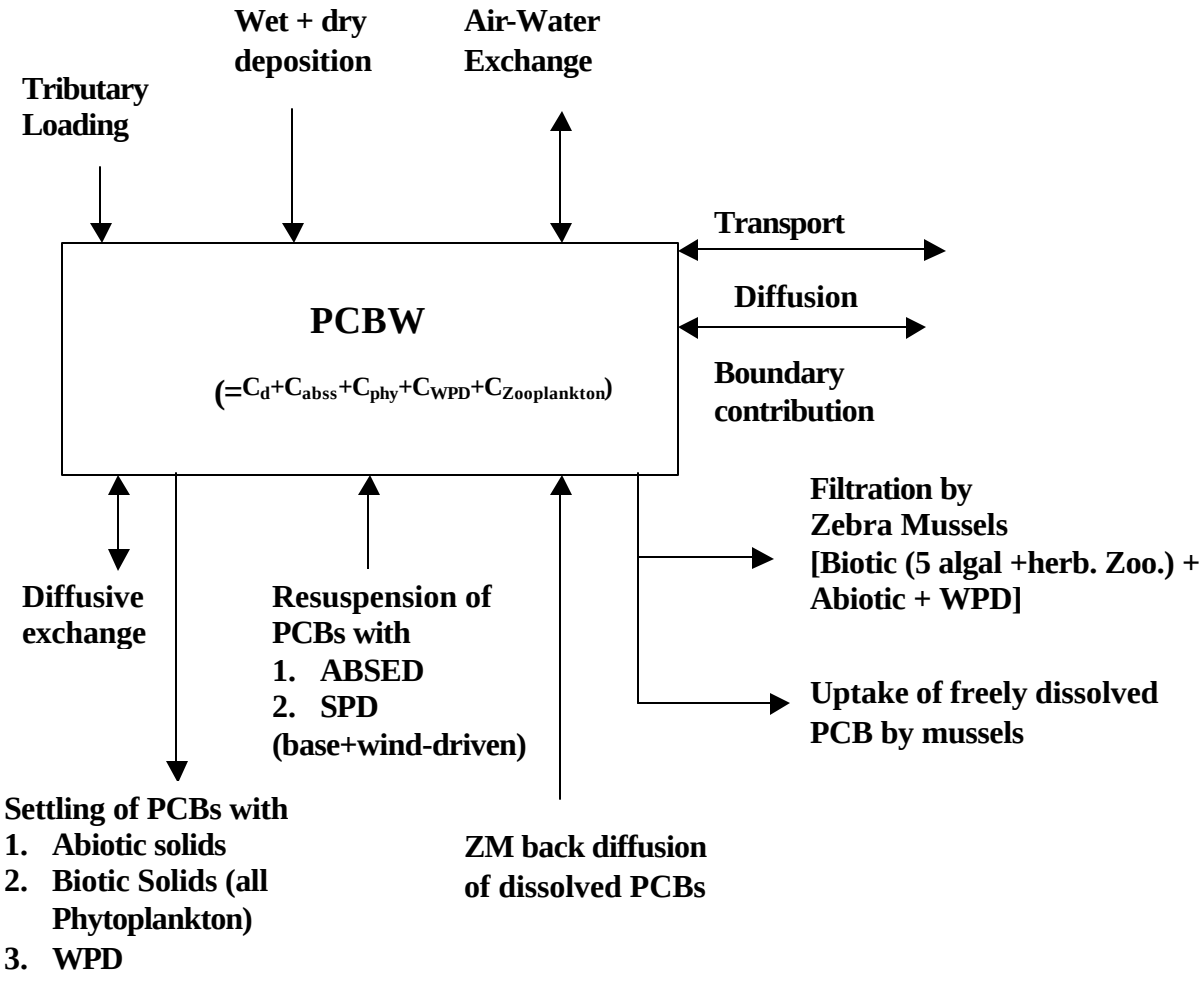
$$+ VFILT(N) \cdot WPD(N) / VOLSED(N)$$

ZM Shunting of WPD

$$- TWGTSD(N) \cdot KRSEDP(N) \cdot SPD(N)$$

Mineralization of SPD

Total PCBs in water column:



Mass Balance for PCBs in the water column:

$$\frac{d(PCBW(N))}{dt} = +\left[W_{PCBT} + W_{DEPOSITON}\right]/V(N)$$

Tributary + wet&dry deposition Loading of PCBs

$$+ RATE(N)\left(\frac{CAIR}{HEPRIMET} - FDW(N)\cdot PCBW(N)\right)/DEPTH(N)$$

Air-Water Exchange

$$+ VD\left(\frac{FDS(N)\cdot PCBS(N)}{POR(N)} - FDW(N)\cdot PCBW(N)\right)/DEPTH(N)$$

Diffusive exchange of Dissolved PCB in w/c and interstitial sediment water

$$- \sum_{L}\left[ALOSS3(L,N)\cdot FPCROP(L,N)\right]\cdot PCBW(N)$$

$$- TSSSNK(N)\cdot FPABSS(N)\cdot PCBW(N)/DEPTH(N)$$

$$- TUPSNK\cdot PCBW(N)\cdot FPWPD(N)/DEPTH(N)$$

Settling of PCBs with
1. **Algae**
2. **Abiotic Solids**
3. **WPD**

$$+ VFILT(N)\cdot FDW(N)\cdot PCBW(N)\cdot(1 - CHEMEFF)/V(N)$$

Excretion of Dissolved PCB by ZM

$$- VFILT(N)\cdot\left(FPABSS(N) + TFPL(N)\right)\cdot PCBW(N)/V(N)$$

$$- VFILT(N)\cdot\left(FPWPD(N) + FDW(N)\right)\cdot PCBW(N)/V(N)$$

Filtration by mussels
1. **Abiotic/Biotic solids**
2. **WPD and freely dissolved**

$$+ \frac{\left(VUSSB(N) + ONOFF * VUPSSW(N)\right)\cdot VOLSED(N)\cdot PCBS(N)\cdot FPABSED(N)}{DEPTHS(N)\times V(N)}$$

$$+ \frac{\left(VUSSB(N) + ONOFF * VUPSSW(N)\right)\cdot VOLSED(N)\cdot PCBS(N)\cdot FPSPD(N)}{DEPTHS(N)\times V(N)}$$

Resuspension of
1. **sediment Abiotics**
2. **SPD**

$$+\left[\sum_{J} -Q(N,J)\left(\acute{a}(N,J)\cdot PCBW(N) + \hat{a}(N,J)\cdot PCBW(J)\right)\right]/V(N)$$

Net Advective

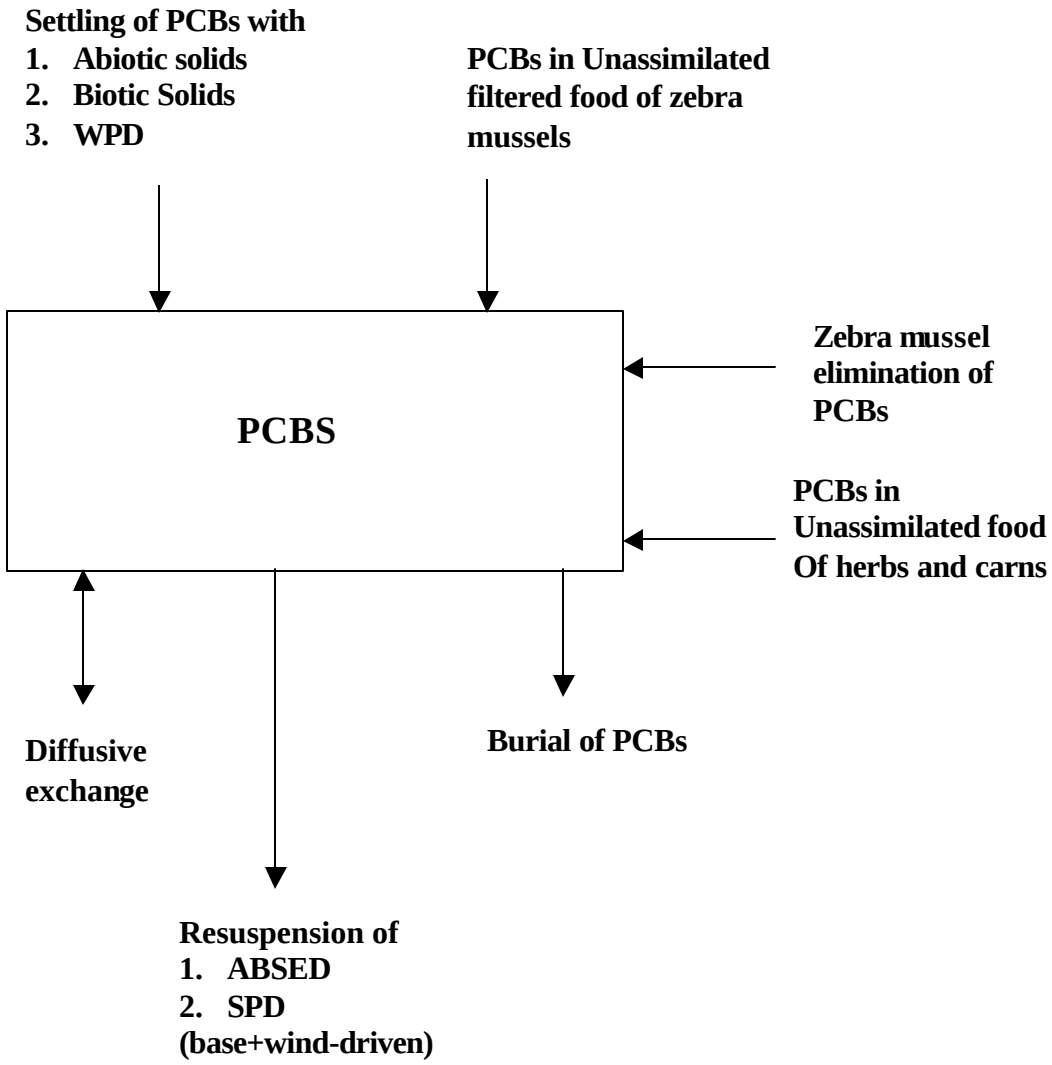
$$+ \sum_{J} E'(N,J)\left[PCBW(J) - PCBW(N)\right]/V(N)$$

Dispersive Transport

$$+\left[\sum_{J} -Q(N,B)\left(\acute{a}(N,B)\cdot PCBW(B) + \hat{a}(N,B)\cdot PCBW(J)\right)\right]/V(N)$$

Boundary

Total PCB in Sediments



Mass Balance for PCBs in the sediment:

$$\frac{d(PCBS(N))}{dt} =$$

$$+ VD\left(\frac{FDS(N)\quad PCBS(N)}{POR(N)} - FDW(N)\quad PCBW(N)\right)/DEPTHS(N)$$

Diffusive exchange of Dissolved PCB in w/c and interstitial sediment water

$$+ ALOSS3(L,N)\quad FPCROP(L,N)\quad PCBW(N)\quad V(N)/VOLSED(N)$$

$$+ TSSSNK\quad FPABSS(N)\quad PCBW(N)\quad V(N)/(DEPTH(N)\times VOLSED(N))$$

$$+ TUPSNK\quad PCBW(N)\quad FPWPD(N)\quad V(N)/(DEPTH(N)\times VOLSED(N))$$

PCB associated w/ settling of
1. **Algae**
2. **Abiotic Solids**
3. **WPD**

$$+ \sum_{Cohort=1}^{3}(1-CHEMFOOD)\,VFILT(N)\quad TFPL(N)\quad PCBW(N)/VOLSED(N)$$

PCB associated with unassimilated food

$$+ \sum_{Cohort=1}^{3}(1-CHEMFOOD)\,\frac{VFILT(N)\quad PCBZ1(1,N)\cdot WWZ1(N)}{VOLSED(N)}$$

$$+ \sum_{Cohort=1}^{3} VFILT(N)\quad FPABSS(N)\quad PCBW(N)/VOLSED(N)$$

$$+ \sum_{Cohort=1}^{3} VFILT(N)\quad FPWPD(N)\quad PCBW(N)/VOLSED(N)$$

Siphoning of PCBs with
1. **Abiotic solids**
2. **WPD**

to sediments by mussels

ZM elimination of PCBs

$$+ \sum_{Cohort=1}^{3}\frac{FILT1(Cohort,N)}{FLPZM\quad K_{ow}}\frac{PCBZM(Cohort,N)}{VOLSED(N)}\cdot nzm(Cohort.n)\cdot bsfa(N)\cdot ZMC(cohort,N)\cdot CHEMFOOD$$

$$- (VUSSB(N)+ONOFF\quad VUPSSW(N))\quad PCBS(N)\quad (FPABSED(N))/DEPTHS(N)$$

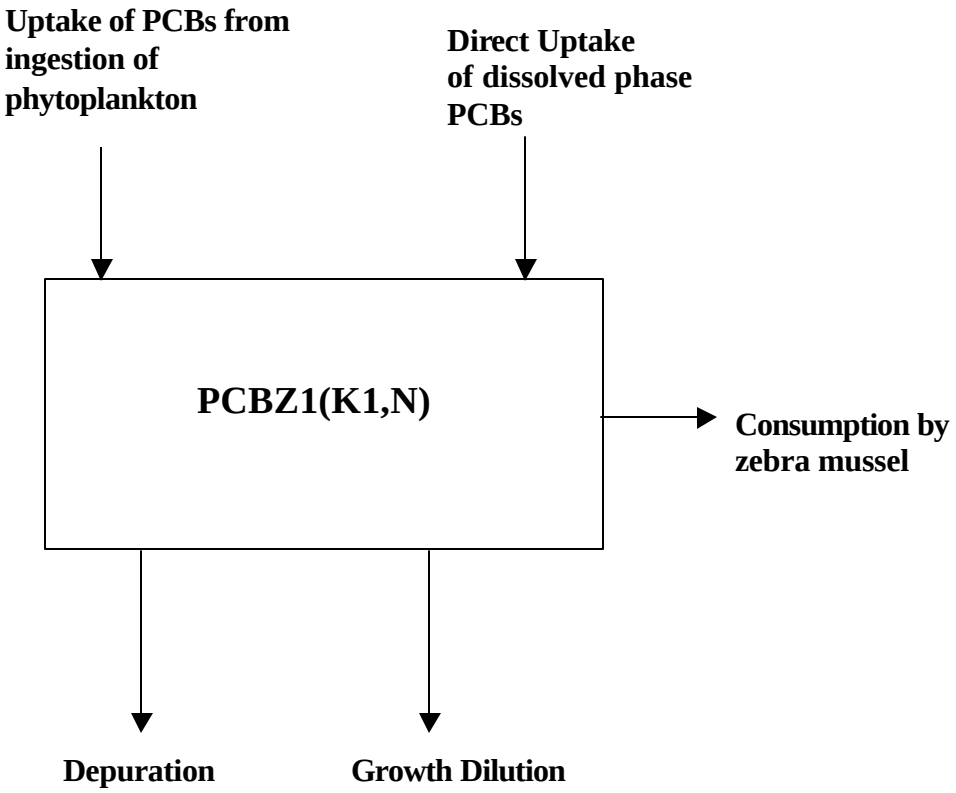
$$- (VUPPB(N)+ONOFF\quad VUPPW(N))\quad PCBS(N)\quad (FPSPD(N))/DEPTHS(N)$$

Resuspension of Abiotic sediment solids and Sediment detritus

$$- \frac{VSSLONG(N)\quad (FPABSED(N)+FPSPD(N))\quad PCBS(N)}{(DEPTHS(N)\times VOLSED(N))}$$

Burial of PCBs with sediment Abiotic and SPD solids

PCB body burden of Herbivorous Zooplankton:



Mass Balance for PCB concentration in Herbivorous Zooplankton:

$$\frac{d(PCBZ1(K1,N))}{dt} =$$

$$+ UPTAKEZ1(N) \cdot FDW(N) \cdot PCBW(N) \cdot WWZ1(N)$$

Direct Uptake of dissolved PCBs

$$+ Z1ASPCB \left[\sum_{L=1}^{3} RAGZD(L,N) \cdot PCBPHYTO(L,N) / Z1(K1,N) \right]$$

Tranfer of PCBs via food

$$- \sum_{zm} VFILT(N) \cdot PCBZ1(K1,N) / V(N)$$

Uptake by ZM

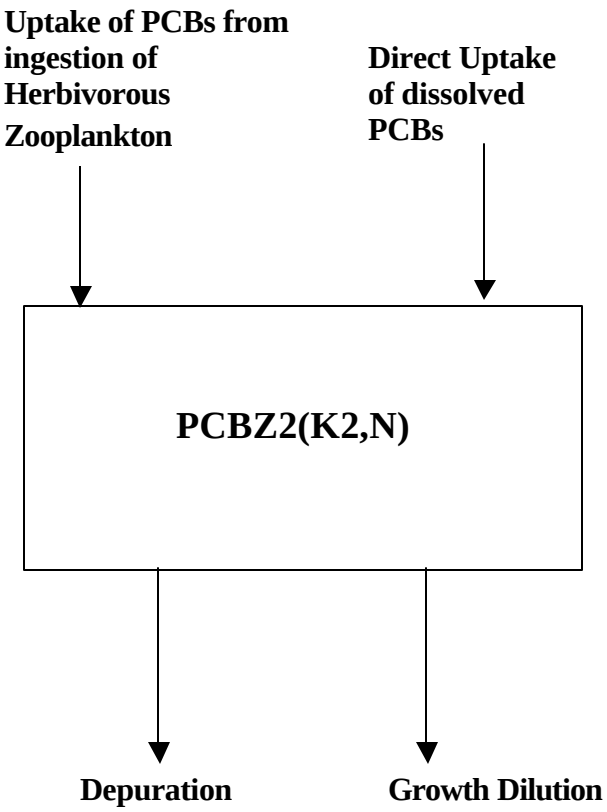
$$- \frac{UPTAKEZ1(N)}{Z1LIPIDF \cdot Kow} \cdot PCBZ1(K1,N)$$

Elimination

$$- RZ1(K1,N) \cdot PCBZ1(K1,N)$$

Growth Dilution

PCB in Carnivorous Zooplankton:



Mass Balance for PCB concentration in Carnivorous Zooplankton:

$$\frac{d(PCBZ2(K2,N)}{dt} =$$

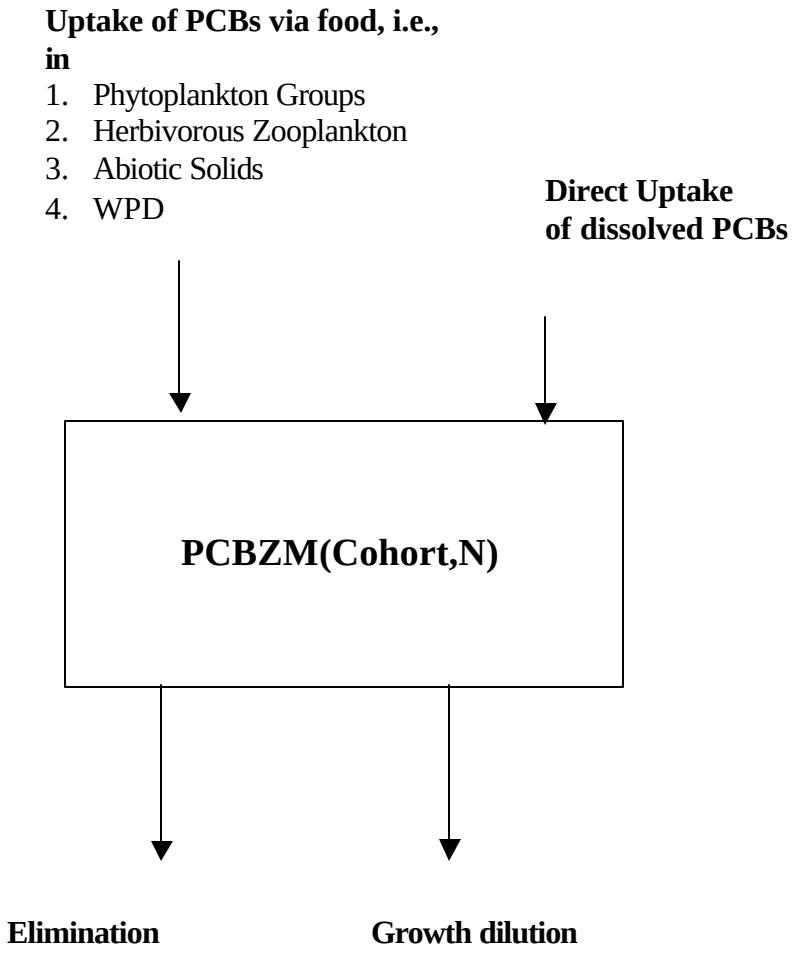
$$+ UPTAKEZ2(N) \cdot FDW(N) \cdot PCBW(N) \cdot WWZ2(N)$$ **Direct Uptake of dissolved PCBs**

$$+ Z2ASPCB \cdot RZ1GZD(K1,N) \cdot PCBZ1(K2,N) / Z1(K1,N)$$ **Uptake of PCBs via food**

$$- \frac{UPTAKEZ2(N)}{Z2LIPIDF \cdot Kow} \cdot PCBZ2(K2,N)$$ **Depuration**

$$- RZ2(K2,N) \cdot PCBZ2(K2,N)$$ **Growth Dilution**

PCB body burden of Zebra Mussels:



Mass Balance for PCB concentration in Zebra Mussels:

$$\frac{d(PCBZM(Cohort,N))}{dt} =$$

$$+ \; FILT(Cohort,N) \cdot FDW(N) \cdot PCBW(N) \cdot CHEMEFF / V(N)$$

Uptake of freely dissolved PCBs

$$+ \; CHEMFOOD \cdot FILT(Cohort,N) \cdot TFPL(N) \cdot PCBW(N) / V(N)$$

Uptake of PCBs via Food (i.e. Phytoplankton Groups)

$$+ \; CHEMFOOD \cdot FILT(Cohort,N) \cdot PCBZ1(K1,N) / V(N)$$

Uptake of PCBs via Herbivorous Zooplankton

$$- \frac{FILT1(Cohort,N)}{FLPZM_{Cohort} \cdot Kow} \cdot PCBZM(Cohort,N)$$

Elimination

$$- \; DZMC(Cohort,N) \cdot PCBZM(Cohort,N)$$

Growth Dilution

GLOSSARY OF PRINCIPAL VARIABLES

A(L,N)	Phytoplankton concentration (mg/liter)
ALOSS1(L,N)	Phytoplankton specific respiration rate (1/day)
ALOSS2(L,N)	Phytoplankton specific decomposition rate (1/day)
ALOSS3(L,N)	Phytoplankton specific settling rate (1/day)
CAIR	PCB concentration in air (ng/m^3)
CHEMEFF	Efficiency of chemical uptake by zebra mussels (dimensionless)
CHEMFOOD	Chemical (Dietary) assimilation efficiency of zebra mussels (dimensionless)
Cohort	Three zebra mussel cohort classes (<1 year olds, 1-2 year olds, and >2 year olds)
DEPTH(N)	Depth of water column spatial segment (meters)
DEPTHS(N)	Depth of sediment spatial segment (meters)
DZMC(Cohort,N)	Zebra mussel growth dilution rate(1/day)
E'_{ij}(N,J)	Bulk diffusion (liters/day)
FDS(N)	Fraction of dissolved PCBs in sediments (dimensionless)
FDW(N)	Fraction of dissolved PCBs in the water column (dimensionless)
FILTER	Volume of water filtered by zebra mussels (liters/day)
FILT1(Cohort,N)	Volume of water filtered by zebra mussels (liters/g wwt - day)
$FLPZM_{Cohort}$	Fraction of lipids for zebra mussels (g lipid/ g wwt)
FPABSED(/SPD)	Fraction of PCBs sorbed to sediment abiotic (/SPD) solids (dimensionless)
FPABSS(/WPD)	Fraction of PCBs sorbed to water column abiotic (/WPD) solids (dimensionless)
FPCROP(L,N)	Fraction of PCBs sorbed to water column biotic solids (i.e. with phytoplankton) (dimensionless)
He	Henry's Law constant (atm m^3/mole)

HEPRIMET	Dimensionless Henry's Law constant
J	Summation index for sequence number of interacting spatial segments
K1	Summation index for number of herbivorous zooplankton
K2	Summation index for number of carnivorous zooplankton
Kow	Octanol water partition coefficient (liter/kg)
KRSEDP(N)	Rate coefficient for mineralization of sediment phosphorus and SPD (1/day)
L	Summation index for number of phytoplankton
N	Summation index for spatial segments
NZM(I,N)	Number of zebra mussels in cohort class I in segment N
ONOFF	Switch for sediment resuspension (dimensionless)
PCBZ1(K1,N)	PCB body burden of herbivorous zooplankton (ng/g wwt)
PCBZM(Cohort,N)	PCB body burden of zebra mussels (ng/g wwt)
PSAMIN(L,N)	Minimum cell quota for phosphorus storage (mg/mg A)
RATE(N)	Net transfer velocity across the air-water interface (m/day)
RZ1(K1,N)	Herbivorous zooplankton specific growth rate (1/day)
RZ1GZD(K1,N)	Rate at which herbivorous zooplankton are grazed by carnivorous zooplankton (mg/liter-day)
RZ1PEX(K1,N)	Rate at which phosphorus (nitrogen, silicon) is excreted to the unavailable compartment by herbivorous zooplankton (mg/mg Z-day)
RZ2(K2,N)	Carnivorous zooplankton specific growth rate (1/day)
PCBPHYTO(N)	Total PCB concentration in phytoplankton (ng/g wwt)
PCBS(N)	Total PCB concentration in sediment (ng/g)
PCBW(N)	Total PCB concentration in water column (ng/L)
PCBZ1(K1,N)	PCB body burden of herbivorous zooplankton (ng/g wwt)

PCBZM(Cohort,N)	PCB body burden of zebra mussels (ng/g wwt)
POR(N)	Sediment porosity (dimensionless)
Q(N,J)	Advective flow (liters/day)
RAGZD(L,N)	Rate at which a phytoplankton is grazed by herbivorous zooplankton (mg/liter-day)
RZ1(K1,N)	Herbivorous zooplankton specific growth rate (1/day)
RZ1GZD(K1,N)	Rate at which herbivorous zooplankton are grazed by carnivorous zooplankton (mg/liters-day)
RZ2(K2,N)	Carnivorous zooplankton specific growth rate (1/day)
RZ2PEX(K2,N)	Rate at which phosphorus is excreted to the unavailable compartment by carnivorous zooplankton (mg/mg Z - day)
TFPL	Total fraction of PCBs associated with all phytoplankton groups (dimensionless)
TSSSNK(N)	Apparent net settling velocity of PCBs (/solids)associated with abiotic solids (m/d)
TUPSNK(N)	Apparent net settling velocity of PCBs (/unavailable nutrients) associated with WPD (m/day)
TWGTSD(N)	Temperature reduction factor for SPD mineralization in sediments (dimensionless)
UPTAKEZ1(N)	Uptake rate of PCBs for herbivorous zooplankton (liters /g wwt-d)
UPTAKEZ2(N)	Uptake rate of PCBs for carnivorous zooplankton (liters/g wwt-d)
V(N)	Volume of water column spatial segment (liters)
VD	Diffusive exchange rate of dissolved PCBs in the water column and interstitial water of sediments (m/day)
VFILT(N)	Filtration rate of zebra mussels (liters/day)
VOLSED(N)	Volume of sediment spatial segment (liters)
VSSLONG(N)	Long term apparent net loss velocity for total PCBs (/solids) from surficial sediments to deep sediment layers (m/day)
VUSSB(N)	Apparent net base resuspension velocity for total PCBs (/solids) from sediments to water column (m/day)

VUPSSW(N)	Apparent net wind induced resuspension velocity for total PCBs (/solids) from sediments to water column (m/day)
W_{PCBT}(N)	Tributary loading rate for total PCBs (kg/day)
$W_{DEPOSITON}$(N)	Wet and dry loading rate for total PCBs (kg/day)
WWZ1(N)	Wet weight of herbivorous zooplankton (g wwt/L)
WWZ2(N)	Wet weight of carnivorous zooplankton (g wwt/L)
Z1(K1,N)	Herbivorous zooplankton concentration (mg/liters)
Z1ASPCB	Herbivorous zooplankton PCB assimilation efficiency (dimensionless)
Z1LIPIDF	Lipid fraction of herbivorous zooplankton (g lipid/g wwt)
Z1LSS1(K1,N)	Herbivorous zooplankton specific respiration rate (1/day)
Z2(K2,N)	Carnivorous zooplankton concentration (mg/liters)
Z2ASPCB	Carnivorous zooplankton PCB assimilation efficiency (dimensionless)
Z2LIPIDF	Lipid fraction of carnivorous zooplankton (g lipid/g wwt)
Z2LSS1(K2,N)	Carnivorous zooplankton specific respiration rate (1/day)
ZMF(Cohort,N)	Production of SPD from egestion of particulates by mussel (mg/L)
ZMPF(Cohort,N)	Production of SPD from pseudofeces by mussels (mg/L)
α(N,J) (/β(N,J))	Weighting factors (dimensionless)

Table A1: Summary of Parameters Used in Model Calculations

Parameter	Description	Value	Source
MW	Molecular weight of PCB	326 gm/mole	Based on homolog distribution in Lake Huron Waters, Anderson et al. (1999)
K_{oc}	Organic carbon partition coefficient	$10^{6.1}$ L/kg	Based on homolog distribution in Lake Huron Waters, Anderson et al. (1999)
He	Henry's law constant at 25°C	2.30×10^{-4} atm-m^3/mole	Bruner et al. (1990)
W_{PCBT}	PCB loading	kg/d	Time series is calculated based on hydrograph and concentration (Verbrugge etal. 1995)
$W_{DEPOSITION}$	PCB loading from wet and dry deposition	12 kg/year	Endicott and Kandt (1994)
RATE(N)	Overall air/water mass transfer coefficient	m/day	Calculated (Achman et al. 1993; Wanninkhof et al. 1993; Reid et al. 1987; Hornbuckle 1994, 1995)
VD	Diffusion exchange coefficient	0.1 cm/d	Endicott et al. (1990)
Z1LIPIDF/ Z2LIPIDF	fraction lipid weight for zooplankton	0.05 g(lp)/g wwt	Thomann (1989)
R_{ZM}	Dry to wet tissue ratio for zebra mussels	0.15	Schneider (1992)
$FLPZM_{Cohort}$	Lipid fraction of zebra mussels	0.05 g lipid/ g wwt	Endicott et al. (1998)
CHEMEFF*	Efficiency of chemical uptake by mussels	dimensionless	Endicott et al. (1998), Based on log K_{ow} (Equation 5 in text)

Parameter	Description	Value	Source
CHEMFOOD*	PCB assimilation efficiency for zebra mussels for biotic solids	dimensionless	Endicott et al. (1998), Based on log K_{ow} (Equation 6 in text)
VFILT(N) and FILT(Cohort,N)	Uptake rate for zebra mussels of class1(/class2/class3)		Calculated internally in the code as per SAGZM (LTI 1995, 1997)
UPTAKEZ1/ UPTAKEZ2	Uptake rate for herbivorous (/carnivorous) zooplankton		Calculated internally in the code as per SAGZM (LTI 1995, 1997)
Z1ASSM(K1)	Herbivorous zooplankton assimilation efficiency	0.6	Bierman et al. (1986)
Z2ASSM(K2)	Carnivorous zooplankton assimilation efficiency	0.6	Bierman et al. (1986)
RAGZD(L,N)	Rate at which a phytoplankton is grazed by herbivorous zooplankton	mg/l-d	Calculated internally in the code as per SAGZM (LTI 1995, 1997)
RZ1GZD(K1,N)	Rate at which a herbivorous zooplankton is grazed by carnivorous zooplankton	mg/l-d	Calculated internally in the code as per SAGZM (LTI 1995, 1997)
RZ2GZD(K2,N)	Carnivorous zooplankton predatory death rate	1/d	Calculated internally in the code as per SAGZM (LTI 1995, 1997)
PCBZ1ASS(K1)	PCB assimilation efficiency for Herbivorous zooplankton	0.4	Endicott et al. (1990)
PCBZ2ASS(K1)	PCB assimilation efficiency for Carnivorous Zooplankton	0.4	Endicott et al. (1990)

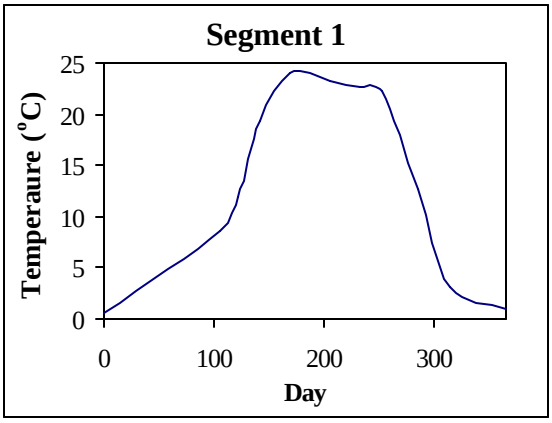
Parameter	Description	Value	Source
Tsssnk (TUPSNK)	Settling velocity for PCBs associated with biotic, (/abiotic and detritus solids)	0.5 m/day	LTI (1995, 1997)
VUSSB(N) (/VUPPB)*	Base resuspension velocity for PCBs associated with abiotic (/SPD) solids	m/day	SAGZM (LTI 1995, 1997)
VUPSSW(N) (/VUPPW(N))*	Resuspension velocity for PCBs associated with abiotic solids (/SPD)	m/day	SAGZM (LTI 1995, 1997)
Vsslong(N) (/VUPPW(N))*	Burial rate for abiotic (/SPD) solids	m/day	SAGZM (LTI 1995, 1997)
KRSEDP	Rate Coefficient for mineralization of SPD	0.175×10^{-4} 1/day	SAGZM (LTI 1995, 1997)
CAIR	Annual average air PCB Concentration	0.5 ng/m^3	Endicott and Kandt (1994)
PCBBD(6/7)	PCB concentration for Lake Huron boundary (for segment 6 and 7)	0.14 ng/L	Anderson et al. (1999)
$f_{oc,abiotic}$	fraction organic carbon for abiotic solids	0.01	
$f_{oc,biotic}$	fraction organic carbon for biotic solids	0.4	Bierman and Dolan (1981)
$f_{oc,detritus}$	fraction organic carbon for detritus	0.2	

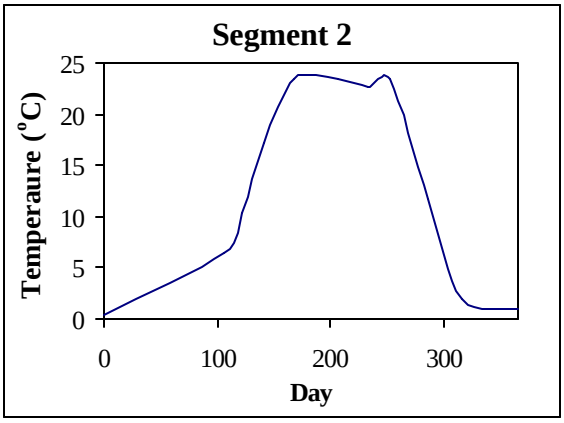
* Values for seven segments are given in Table A2

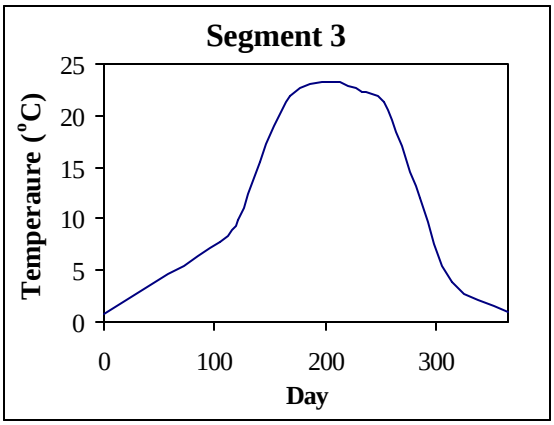
Table A2: Summary of Parameters Used in Model Calculations

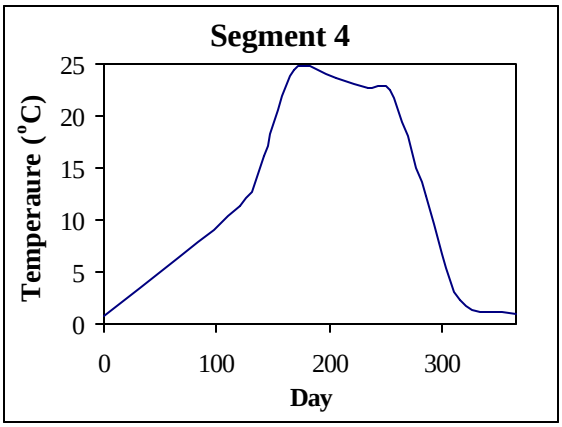
Segment #	VUPPB (m/day)	VUPPW (m/day)	VSSLONG (m/day)
1	0.100×10^{-4}	0.200×10^{-4}	0.300×10^{-5}
2	0.100×10^{-4}	0.200×10^{-4}	0.300×10^{-5}
3	0.100×10^{-4}	0.100×10^{-4}	0.100×10^{-4}
4	0.100×10^{-4}	0.200×10^{-4}	0.300×10^{-5}
5	0.100×10^{-4}	0.200×10^{-4}	0.300×10^{-5}
6	0.400×10^{-5}	0.500×10^{-5}	0.300×10^{-5}
7	0.400×10^{-5}	0.500×10^{-5}	0.300×10^{-5}

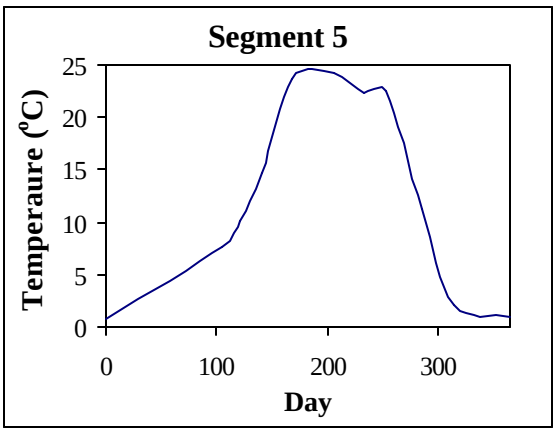
Time Series of Forcing Functions

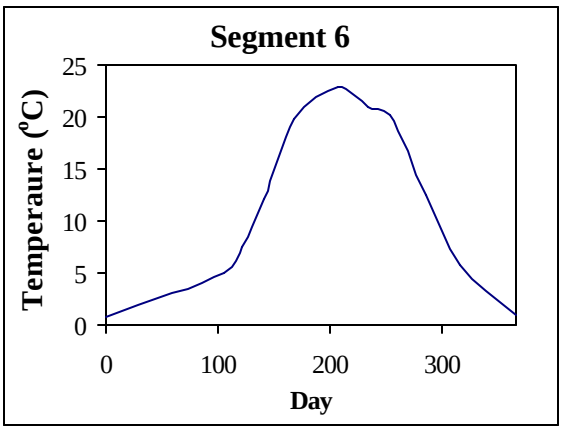

Segment 1
Temperaure (°C)
25
20
15
10
5
0
0
100
200
300
Day

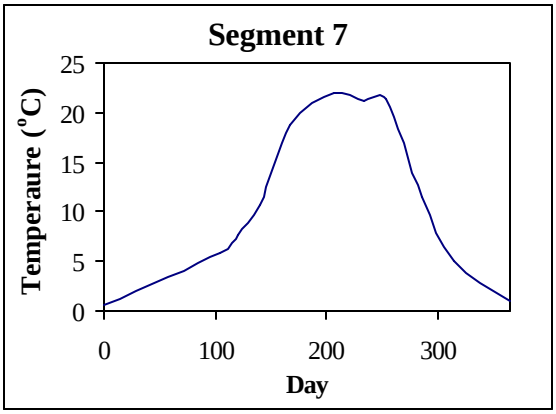

Segment 2
Temperaure (°C)
25
20
15
10
5
0
0
100
200
300
Day

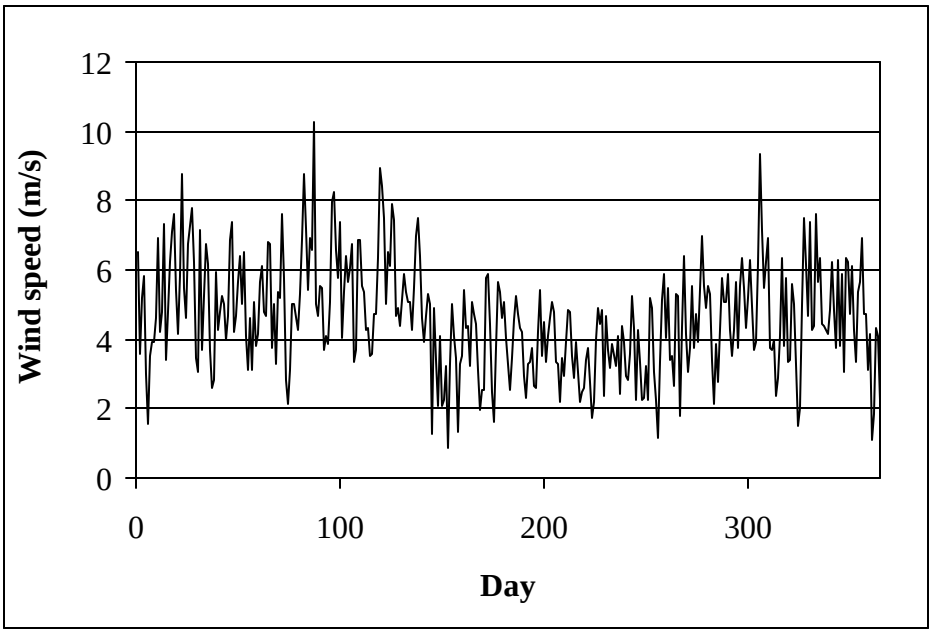

Segment 3
Temperaure (°C)
25
20
15
10
5
0
0
100
200
300
Day

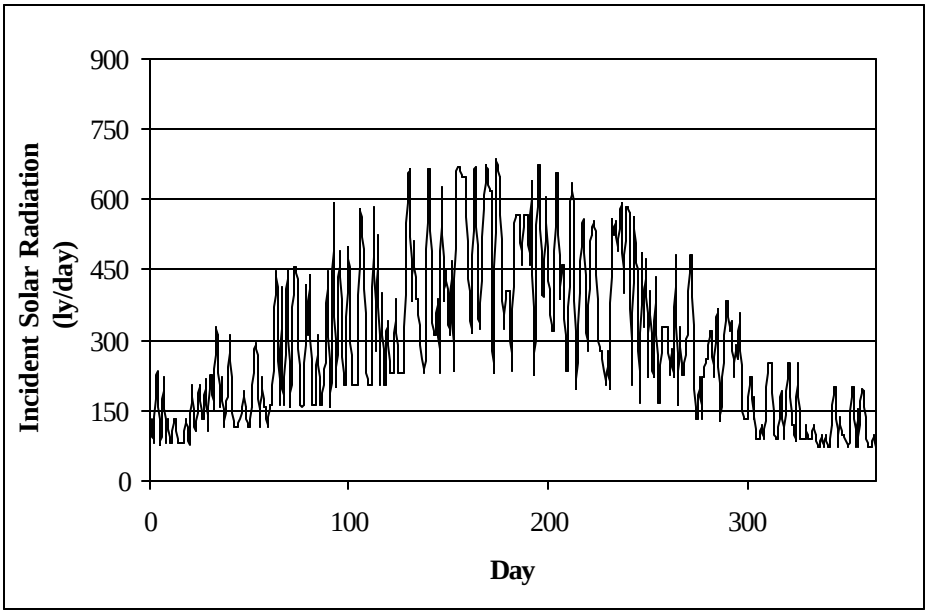

Segment 4
Temperaure (°C)
25
20
15
10
5
0
0
100
200
300
Day


Segment 5
Temperaure (°C)
25
20
15
10
5
0
0
100
200
300
Day


Segment 6
Temperaure (°C)
25
20
15
10
5
0
0
100
200
300
Day


Segment 7
Temperaure (°C)
25
20
15
10
5
0
0
100
200
300
Day


Wind speed (m/s)
12
10
8
6
4
2
0
0
100
200
300
Day


Incident Solar Radiation (ly/day)
900
750
600
450
300
150
0
0
100
200
300
Day