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APÊNDICE

Tabela 7. Parâmetros obtidos a partir do modelo bioenergético de Wisconsin para os quatro grupo de coletas. I_i, I_f (dia^{-1}): Taxa de consumodiário de alimento no início e no final da modelagem, respectivamente; R_i, R_f (dia^{-1}): Taxa metabólica diária no inicio e no final da modelagem, respectivamente.

Localidade/Ano	**Santarém 1992**	**Santarém 2001**	**Itaituba - Jacareacanga 1992**	**Itaituba - Jacareacanga 2001**
I_i (dia^{-1})	0.0177	0,0176	0,0122	0,0226
I_f (dia^{-1})	0,0019	0,0095	0,005	0,0119
R_i (dia^{-1})	0,0056	0,0072	0,0042	0,0088
R_f (dia^{-1})	0,0039	0,0045	0,0022	0,0052
G_i (dia^{-1})	0,0077	0,0061	0,005	0,0083
G_f (dia^{-1})	0,001	0,0027	0,0015	0,0037

Tabela 8-Valores de parâmetros físico – químicos da água em várias zonas do rio Tapajós.

Localidade	Data	Temperatura (°C)	pH	Condutividade µS/cm
Alter do Chão	06/1994	29,2	6,8	11,0
	03/1995	29,1	7,2	13,3
	07/1995	29,3	7,1	15,0
	11/1995	30,3	7,3	14,6
	07/1996	29,0	7,2	11,0
	10/1996	31,3	7,5	14,4
	05/1998	29,2	6,6	10,0
	10/1998	31,0	6,9	16,4
	05/2000	29,6	6,3	14,0
Aveiro	05/1997	29,6	6,2	14,7
Itaituba	10/1997	32,2	6,7	14,5
	04/1998	32,2	6,5	12,6

Tabela 9. Valores de comprimento total, TL (mm); massa, W (g) e concentração de mercúrio, [Hg_T] (µg g^{-1}) dos tucunaré coletados no sistema de lagos Maicá (Santarém) em 1992.

Espécie	TL (mm)	W (g)	[Hg_T] (µg g^{-1})
Cichla sp.	220	100	0,10199
Cichla sp.	250	250	0,1167
Cichla sp.	280	300	0,08185
Cichla sp.	360	550	0,12133
Cichla sp.	360	600	0,12116
Cichla sp.	370	750	0,09579
Cichla sp.	460	1250	0,13164
Cichla sp.	510	1800	0,18926
Cichla sp.	520	2000	0,18575
Cichla sp.	660	4250	0,26462
Cichla sp.	200		0,0699
Cichla sp.	310		0,0588
Cichla sp.	315		0,1041
Cichla sp.	325		0,08
Cichla sp.	330		0,1123
Cichla sp.	330		0,0942
Cichla sp.	375		0,1169
Cichla sp.	400		0,0736
Cichla sp.	610		0,1152
Cichla sp.	205		0,051
Cichla sp.	240		0,086
Cichla sp.	250		0,113
Cichla sp.	335		0,014
Cichla sp.	370		0,094
Cichla sp.	380		0,183
Cichla sp.	480		0,218
Cichla sp.	500		0,109
Cichla sp.	500		0,13

Tabela 10. Valores de comprimento total, TL (mm); massa, W (g) e concentração de mercúrio, $[Hg_T]$ ($\mu g\ g^{-1}$) dos tucunarés coletados no rio Tapajós (Itaituba-Jacareacanga) em 1992.

Espécie	TL (mm)	W (g)	$[Hg_T]$ ($\mu g\ g^{-1}$)
Cichla sp.	245	300	0,46946
Cichla sp.	290	420	0,18534
Cichla sp.	320	600	0,28105
Cichla sp.	320	620	0,30525
Cichla sp.	335	620	0,27294
Cichla sp.	340	600	0,29819
Cichla sp.	345	660	0,66573
Cichla sp.	355	650	0,39881
Cichla sp.	375	770	0,30996
Cichla sp.	440	1180	0,31168
Cichla sp.	300	380	0,3835
Cichla sp.	310	360	0,1759
Cichla sp.	315	400	0,2393
Cichla sp.	365	650	0,207
Cichla sp.	390	730	0,456
Cichla sp.	410	1260	0,4659
Cichla sp.	253	202	0,309
Cichla sp.	284	278,5	0,955
Cichla sp.	286	317,5	0,659
Cichla sp.	298	357,5	0,585
Cichla sp.	330	383,5	0,444
Cichla sp.	310	393,5	0,61
Cichla sp.	403	699	0,584
Cichla sp.	290	360	0,30669
Cichla sp.	300	390	0,25448
Cichla sp.	310	420	0,21274
Cichla sp.	350	550	0,46539
Cichla sp.	420	850	0,37975
Cichla sp.	320	500	0,493
Cichla sp.	340	700	0,266
Cichla sp.	370	1000	0,512
Cichla sp.	470	1800	0,933
Cichla sp.	530	2200	0,512

Tabela 11. Valores de comprimento padrão, SL (mm); comprimento total, TL (mm); massa, W (g) e concentração de mercúrio, $[Hg_T]$ (µg g^{-1}) dos tucunarés coletados no sistema de lagos Maicá (Santarém) em 2001.

Espécie	SL (mm)	TL (mm)	W (g)	$[Hg_T]$ (µg g^{-1})
C. monoculus	370	430	1100	0,2534
C. monoculus	315	360	650	0,22864
C. monoculus	285	335	600	0,2654
C. monoculus	305	350	625	0,1422
C. monoculus	325	360	700	0,15773
C. monoculus	310	350	700	0,1475
C. monoculus	280	310	500	0,1195
C. monoculus	285	320	525	0,176
C. monoculus	290	330	550	0,1476
C. monoculus	325	370	850	0,1989
C. monoculus	325	365	800	0,15175
C. monoculus	340	395	1050	0,3345
C. monoculus	310	365	600	0,3232
C. monoculus	410	470	1500	0,5358
C. monoculus	330	375	775	0,4652
C. monoculus	280	320	475	0,11637
C. monoculus	400	455	1600	0,33392
C. monoculus	280	330	550	0,1541
C. monoculus	235	270	200	0,08085
C. monoculus	270	310	375	0,1277
C. monoculus	325	380	700	0,13308
C. monoculus	265	315	375	0,1582
C. monoculus	305	345	575	0,35898
C. monoculus	320	375	825	0,1501
C. monoculus	315	345	550	0,4868
C. monoculus	365	390	710	0,2009
C. monoculus	290	335	600	0,243
C. monoculus	295	330	550	0,1855
C. monoculus	325	375	700	0,2247
C. monoculus	260	300	400	0,1949
C. monoculus	245	285	250	0,1975
C. monoculus	295	340	550	0,2372
C. monoculus	310	360	575	0,17

C. monoculus	295	345	575	0,16754
C. monoculus	265	315	450	0,2914
C. monoculus	270	320	575	0,2551
C. monoculus	320	375	725	0,25657
C. monoculus	310	365	600	0,23827
C. monoculus	250	295	300	0,3739
C. monoculus	263	310	400	0,17525
C. monoculus	317	364	750	0,1952
C. monoculus	300	355	630	0,2147
C. monoculus	225	265	300	0,13228
C. monoculus	330	385	775	0,4866
C. monoculus	265	315	475	0,2705
C. monoculus	322	373	900	0,4181
C. monoculus	201	233	200	0,2276
C. monoculus	305	356	650	0,18496
C. monoculus	275	330	460	0,3577
C. monoculus	310	365	750	0,2104
C. monoculus	298	354	690	0,1162
C. monoculus	365	412	950	0,4578

Tabela 12. Valores de comprimento padrão, SL (mm); comprimento total, TL (mm); massa, W (g) e concentração de mercúrio, $[Hg_T]$ ($\mu g\ g^{-1}$) dos tucunarés coletados no rio Tapajós (Itaituba-Jacareacanga) em 2001.

Espécie	SL (mm)	TL (mm)	W (g)	$[Hg_T]$ ($\mu g\ g^{-1}$)
C. monoculus	320	380	675	1,0879
C. monoculus	300	355	550	0,87303
C. monoculus	320	385	700	1,1067
C. monoculus	320	380	560	0,82
C. monoculus	310	370	550	0,8168
C. monoculus	265	320	375	1,01982
C. monoculus	280	340	490	0,5499
C. monoculus	280	340	475	0,8741
C. monoculus	190	233	175	0,40074
C. monoculus	320	380	710	0,68986
C. monoculus	200	243	180	0,2775
C. monoculus	260	315	350	0,6054
C. monoculus	275	330	450	0,562

C. monoculus	325	390	750	0,8236
C. monoculus	205	250	90	0,4324
C. monoculus	290	345	550	0,471
C. monoculus	295	355	590	0,6262
C. monoculus	310	370	675	0,7395
C. monoculus	280	340	500	0,7072
C. monoculus	273	327	450	0,56916
C. monoculus	297	354	640	0,5677
C. monoculus	305	350	640	0,9186
C. monoculus	313	365	590	0,7712
C. monoculus	285	335	625	0,8751
C. monoculus	310	370	640	1,13969
C. monoculus	256	310	390	0,5932

Tabela 13. Parâmetros de entrada do modelo de balanço de massa e bioenergético.

Parâmetro	Descrição	Valor	Referência
T	Temperatura da água	30ºC	1
T_o	Temperatura de respiração ótima	28ºC	2
T_m	Temperatura de respiração máxima	42ºC	3
Q	Fator de dependência da temperatura	2.75	4
Eq. O_2	Equivalente calórico do oxigênio	13,6 J.mgO_2	5
a_1	Expoente alométrico do metabolismo basal	6,584	4
b_1	Coeficiente alométrico do metabolismo basal	-0,2957	4
ACT	Coeficiente do metabolismo ativo	1,25	6
sda	Coeficiente das ações dinâmicas especificas	0,17	7
e	Coeficiente de ejeção	0,09	6,8
f	Coeficiente de excreção	0,17	6
a	Eficiência de assimilação de Hg	0,8	9
f	Coeficiente de eliminação de Hg	0,0029	10
ß	Expoente alométrico da eliminação de Hg	-0,20	10
?	Coeficiente da temperatura de eliminação de Hg	0,066	10
Qm	Razão entre a concentração de mercúrio nas gônadas e no corpo do peixe macho	0,12	11
Qf	Razão entre a concentração de mercúrio nas gônadas e no corpo do peixe fêmea	0,59	11
GSIm	Índice gonadosomático do macho	0,27	12
GSIf	Índice gonodosomático da fêmea	1,86	12
CP_8	Tamanho máximo assintótico do *Cichla monoculus*	71 cm	13
k	Taxa de crescimento anual do *Cichla monoculus*	0,36 ano^{-1}	13
Cd mín Cd máx	Concentração de Hg mínima e máxima observada no jaraquí do lago Maicá em 1992	0,015 $\mu g.g^{-1}$ 0,13 $\mu g.g^{-1}$	14
Cd mín Cdmáx	Concentração de Hg mínima e máxima observada no jaraquí do rio Tapajós em 1992	0,012 $\mu g.g^{-1}$ 0,456 $\mu g.g^{-1}$	14

[a]1, HiBam; 2, Lovell (1998); 3, Froese & Pauly (2004);4, Caulton (1978); 5, Salomon & Brafield (1972); 6, Pääkkönen et al., (2003); 7, Beamish (1974); 8, Rice et al., 1983; 9, Norstrom et al., 1976; 10, Trudel & Rasmussen 1997; 11, Trudel et al., (2000); 12, Chellapa et al., (2003); 13, Ruffino & Isaac 1995;14, Castilhos et al., (1998).