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Marine and Freshwater Research

Supplementary Material

Unravelling a specialised diet of an Amazonian catfish in a controlled flood-pulse area by combining stomach-content and stable-isotope analyses

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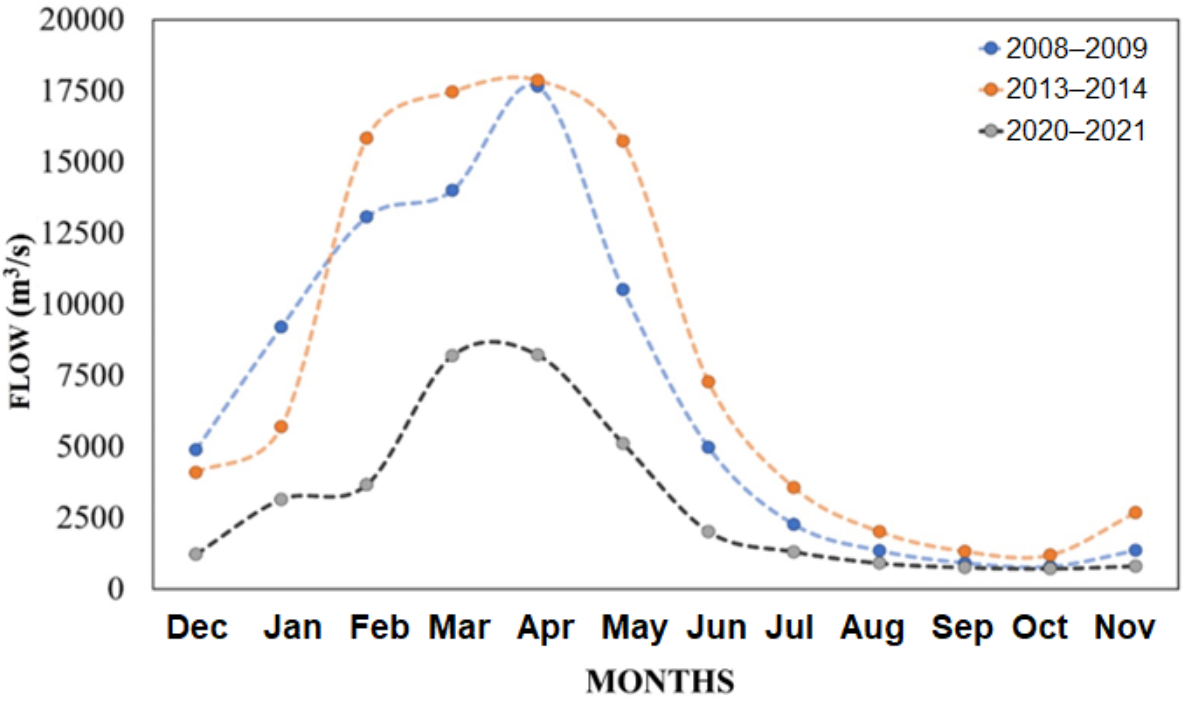

Figure S1. Monthly average of water flow in the Volta Grande do Xingu (VGX) (Pará, Brazil) in the pre- (2008–2009 and 2013–2014) and post-dam period (2020–2021).

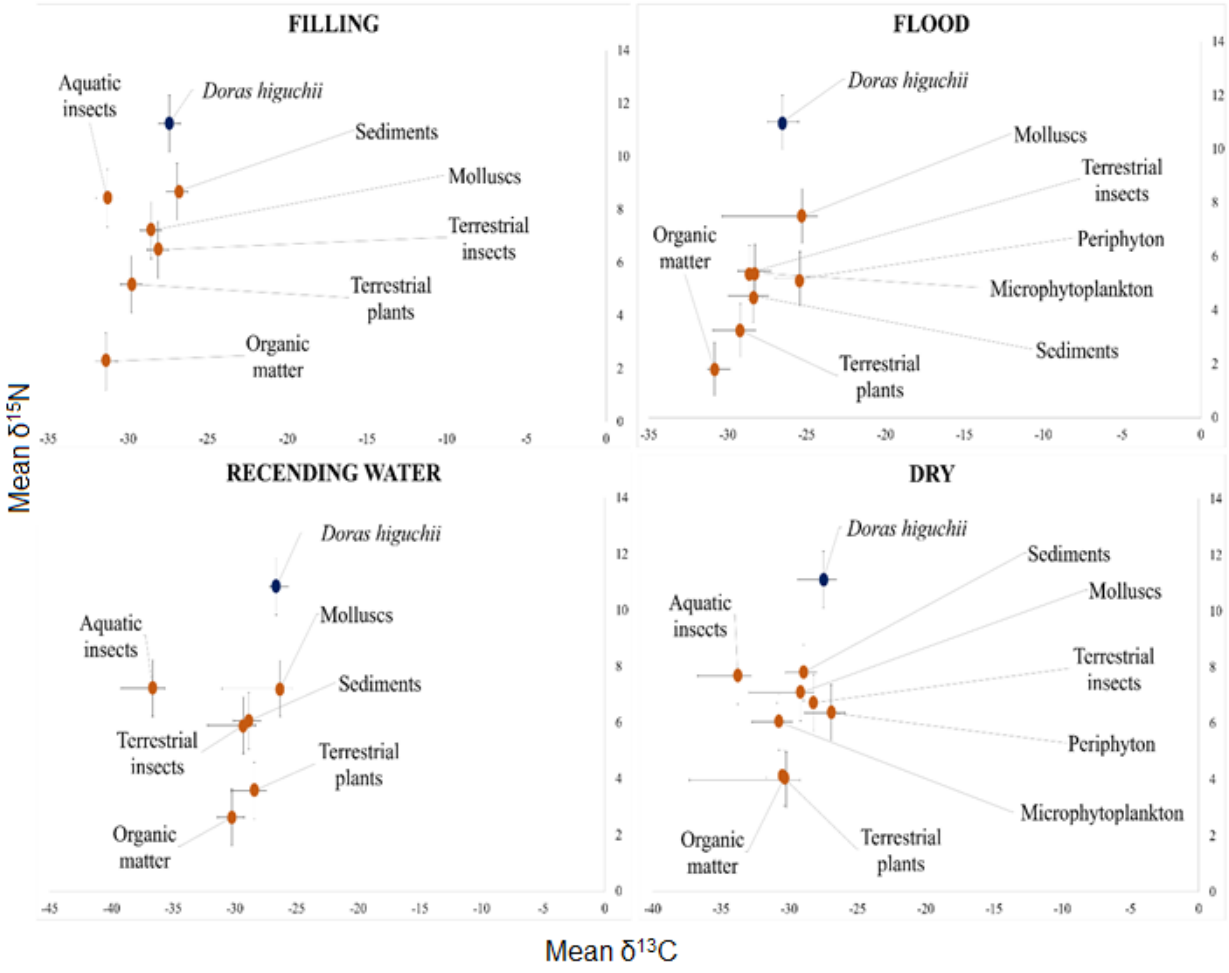

Figure S2. Biplot with averages and deviations of resources and muscle of *Doras higuchii* in each hydrological period for the selection and subsequent analysis of mixing models, collected from December 2020 to November 2021 in the Volta Grande do Xingu (VGX).

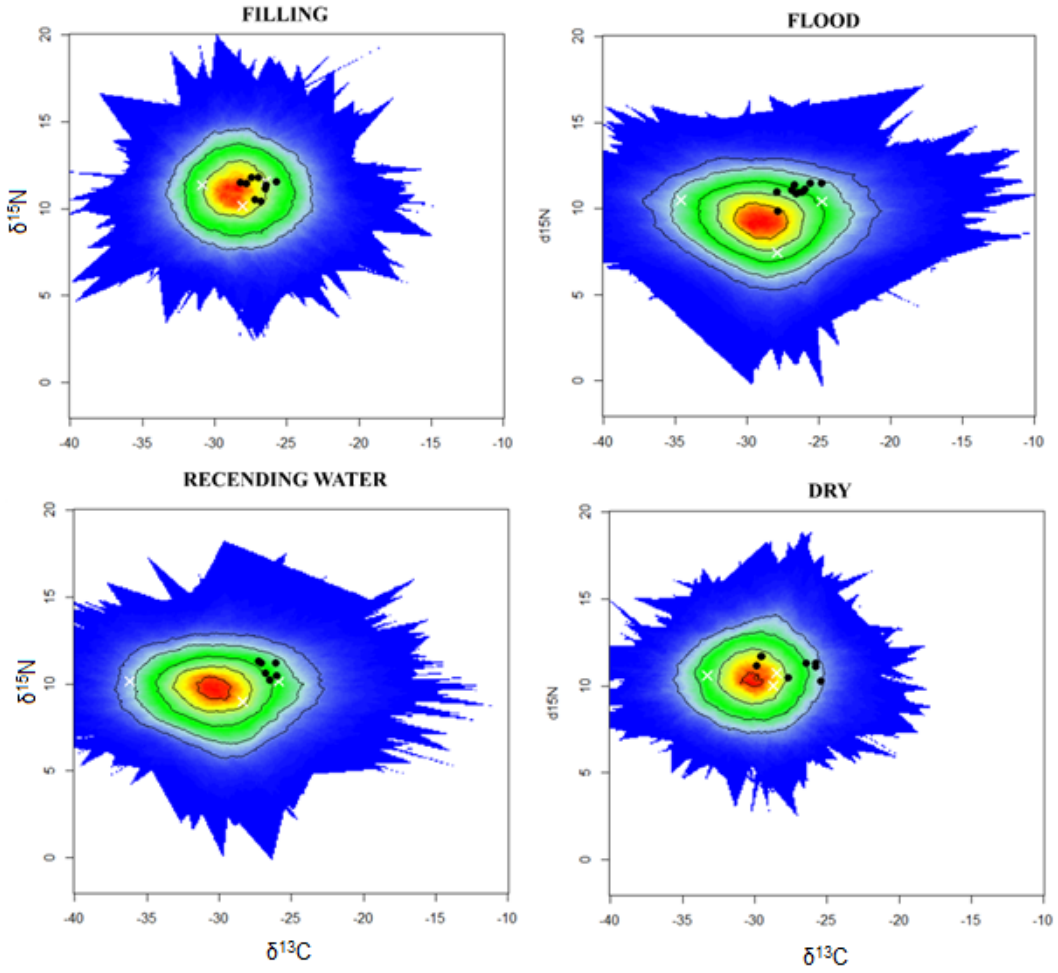

Figure S3. Mixture models (polygons) of *Doras higuchii* (Doradidae: Siluriformes) samples and its food resources, collected from December 2020 to November 2021 in the Volta Grande do Xingu (VGX), middle Xingu River (Pará, Brazil). The muscle samples of the species are indicated in black on the polygon, and the trophic resources in white. Probability contours are 5%. Aquatic insect (INSAQU), Sediment (SEDIME) and Molluscs (MOLLUSC).

Table S1. Alimentary Index (*Ai*%) of items and feeding categories of *Doras higuchii* (Doradidae: Siluriformes) collected from December 2020 to November 2021 in the Volta Grande do Xingu (VGX), middle Xingu River (Pará, Brazil).

Food items	Filling			Flood			Recending water			Dry		
	Dec/20 (*n* = 8)	Jan/21 (*n* = 18)	Feb/21 (*n* = 18)	Mar/21 (*n* = 10)	Apr/21 (*n* = 17)	May/21 (*n* = 21)	Jun/21 (*n* = 13)	Jul/21 (*n* = 17)	Aug/21 (*n* = 31)	Sep/21 (*n* = 25)	Oct/21 (*n* = 17)	Nov/21 (*n* = 25)
AUTOCHTHONOUS												
Aquatic insects	0.14	0.16	0.12	0.37	0.30	0.11	0.67	0.64	0.28	0.24	0.10	0.18
Diptera (immature)			<0.01		<0.01	<0.01	0.04			<0.01		<0.01
Diptera (Ceratopogonidae; immature)	0.14	0.10	0.37	0.15	0.06	0.54	0.27	0.27	0.24	0.06	0.16	0.11
Diptera (Chironomidae; immature)		<0.01	<0.01									
Diptera (Tipulidae; immature)						<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Coleoptera (immature)					<0.01		<0.01			<0.01	<0.01	
Coleoptera (Elmidae; immature)		<0.01										
Ephemeroptera (immature)					<0.01							
Ephemeroptera (Polymitarcyidae; immature)					<0.01	<0.01						
Hemiptera (immature)					<0.01							
Hemiptera (Naucoridae; immature)		<0.01										
Trichoptera (immature)					<0.01	0.03	0.05			<0.01	<0.01	<0.01
Trichoptera (Ecnomidae; immature)					<0.01		<0.01	<0.01	<0.01	<0.01		<0.01
Trichoptera (Hydropsychidae; immature)		<0.01										
Trichoptera (Leptoceridae; immature)					<0.01							
Trichoptera (Polycentropodidae; immature)						<0.01		<0.01				
Odonata (immature)		<0.01										
Plecoptera (immature)		<0.01										
Insect fragment	<0.01	0.01		0.04	<0.01	<0.01	<0.01	<0.01	<0.001	<0.01		<0.001
Insect fragment (immature)					<0.01	<0.01					<0.001	
Aquatic molluscs			<0.01	<0.01	<0.01	<0.01	<0.01		<0.01			
Bivalve		<0.01	<0.01			<0.01		<0.01				
Gastropoda		<0.01	<0.01	<0.01	<0.01	<0.01						
Fish	<0.01		<0.01	<0.01		<0.01	<0.01		<0.01			
Scale		<0.01			<0.01							<0.01
Fish fragments			<0.01		<0.01	<0.01		<0.01				
Sediment	0.86	0.84	0.88	0.63	0.70	0.89	0.32	0.36	0.72	0.75	0.89	0.82
Detritus	0.86	0.82	0.63	0.80	0.93	0.42	0.63	0.73	0.75	0.94	0.84	0.88
Stone or sand		0,05										
ALLOCHTHONOUS												
Terrestrial insects		<0.01										
Ephemeroptera		<0.01										
Terrestrial Plants	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01
Plant fragments	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01

n, number of stomachs with items.

Table S2. Mean and standard deviation (±s.d.) of carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) isotopic signatures of *Doras higuchii* (Doradidae: Siluriformes) and trophic resources collected in the Volta Grande do Xingu (VGX), middle Xingu River (Pará, Brazil).

Sample	**Filling**			**Flood**			**Recending Water**			**Dry**		
	$\delta^{15}N$	**$\delta^{13}C$**	***n***	**$\delta^{15}N$**	**$\delta^{13}C$**	***n***	**$\delta^{15}N$**	**$\delta^{13}C$**	***n***	**$\delta^{15}N$**	**$\delta^{13}C$**	***n***
Doras higuchii	11.24 (± 0.63)	-27.41 (± 0.53)	26	11.01 (± 0.47)	-26.52 (± 0.95)	30	10.84 (± 0.46)	-26.63 (± 0.51)	30	11.13 (± 0.51)	-27.5 (± 1.91)	23
Aquatic insects	8.43 (± 0.54)	-31.3 (± 1.59)	-	-	-	12	7.22 (± 0.6)	-36.66 (± 2.57)	34	7.69 (± 0.87)	-33.77 (± 2.92)	5
Terrestrial insects	6.48 (± 1.81)	-28.11 (± 3.07)	5	5.45 (± 1.4)	-28.27 (± 1.08)	7	5.9 (± 2.02)	-29.3 (± 2.91)	17	6.73 (± 2.48)	-28.23 (± 2.65)	10
Organic matter	2.27 (± 1.26)	-31.39 (± 1.22)	8	1.8 (± 1.31)	-30.84 (± 0.46)	10	2.63 (± 1.78)	-30.24 (± 1.16)	5	4.06 (± 1.94)	-30.36 (± 1.3)	7
Microphytoplankton	-	-	14	5.4 (± 0.44)	-28.63 (± 0.79)	-	-	-	12	6.05 (± 1.38)	-30.75 (± 1.98)	-
Molluscs	7.22 (± 1.17)	-28.54 (± 4.46)	5	7.5 (± 0.92)	-25.28 (± 5.08)	5	7.21 (± 1.24)	-26.32 (± 4.72)	25	7.09 (± 1.1)	-29.18 (± 3.76)	11
Periphyton	-	-	4	5.18 (± 0.55)	-25.43 (± 1.56)	-	-	-	7	6.38 (± 1.84)	-26.92 (± 1.95)	-
Terrestrial plants	5.18 (± 2.62)	-29.78 (± 2.26)	28	5.24 (± 2.57)	-28.29 (± 2.35)	30	3.58 (± 2.39)	-28.41 (± 1.89)	19	3.58 (± 2.39)	-28.41 (± 1.89)	26
Aquatic producers	7.46 (± 1.42)	-29.52 (± 4.19)	-	3.25 (± 1.85)	-29.21 (± 1.71)	-	-	-	-	3.99 (± 0.55)	-30.23 (± 7.09)	-
Sediments	8.67 (± 2.37)	-26.93 (± 2.37)	22	4.54 (± 1.33)	-28.39 (± 1.6)	23	6.06 (± 1.71)	-28.85 (± 1.25)	25	7.81 (± 1.92)	-28.96 (± 1.3)	12
Total			112			117			174			94

n, number of samples analysed.

Table S3. The contribution of trophic resources ($\delta^{13}C/\delta^{15}N$) in the diet of *D. higuchii*.

	Aquatic inv.	**Molluscs**	**Sediment**
Filling	30.7%	28.2%	41.1%
Flood	27.2%	32%	40.7%
Receding water	18.8%	44.6%	36.6%
Dry	30%	31.4%	38.7%