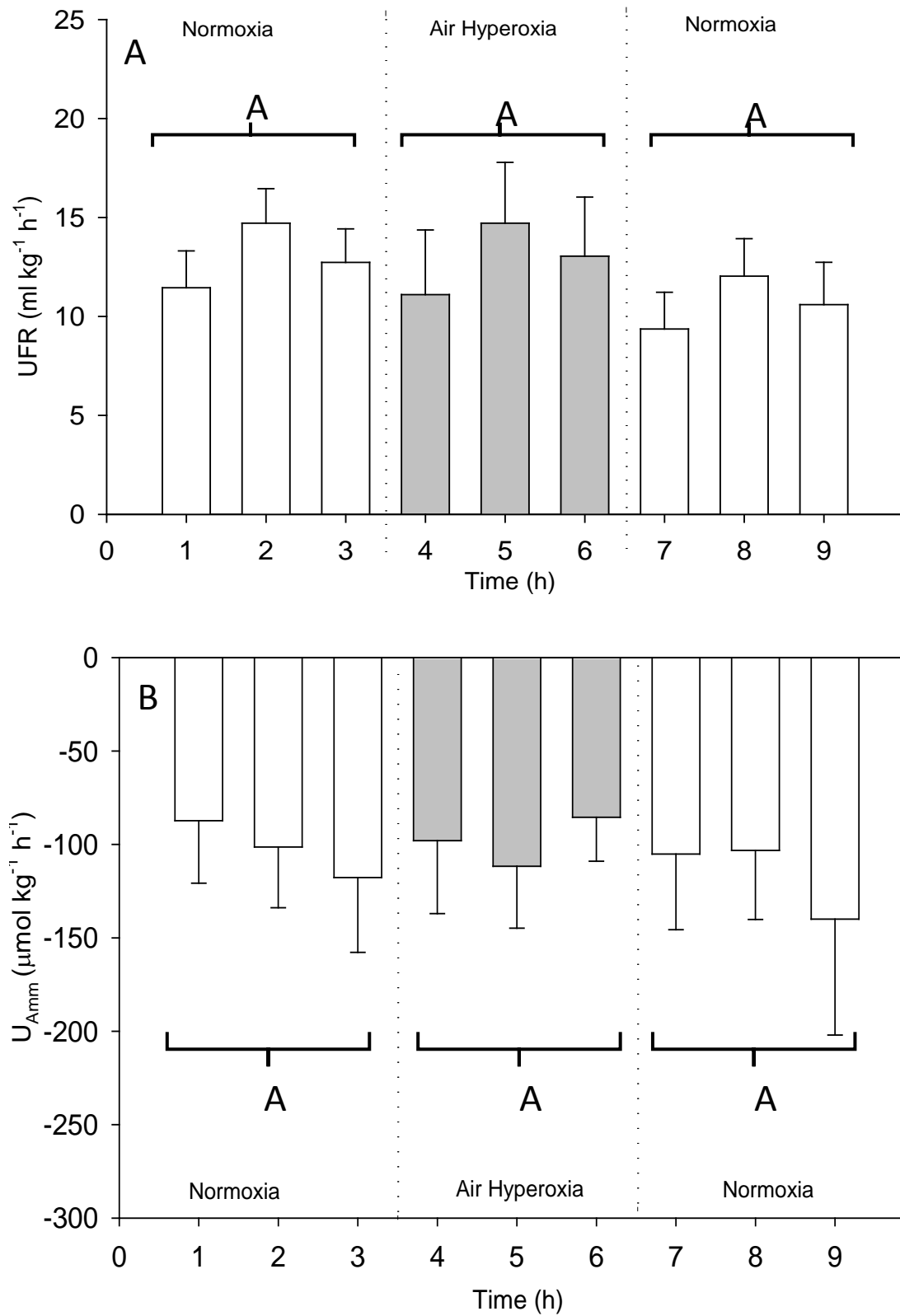


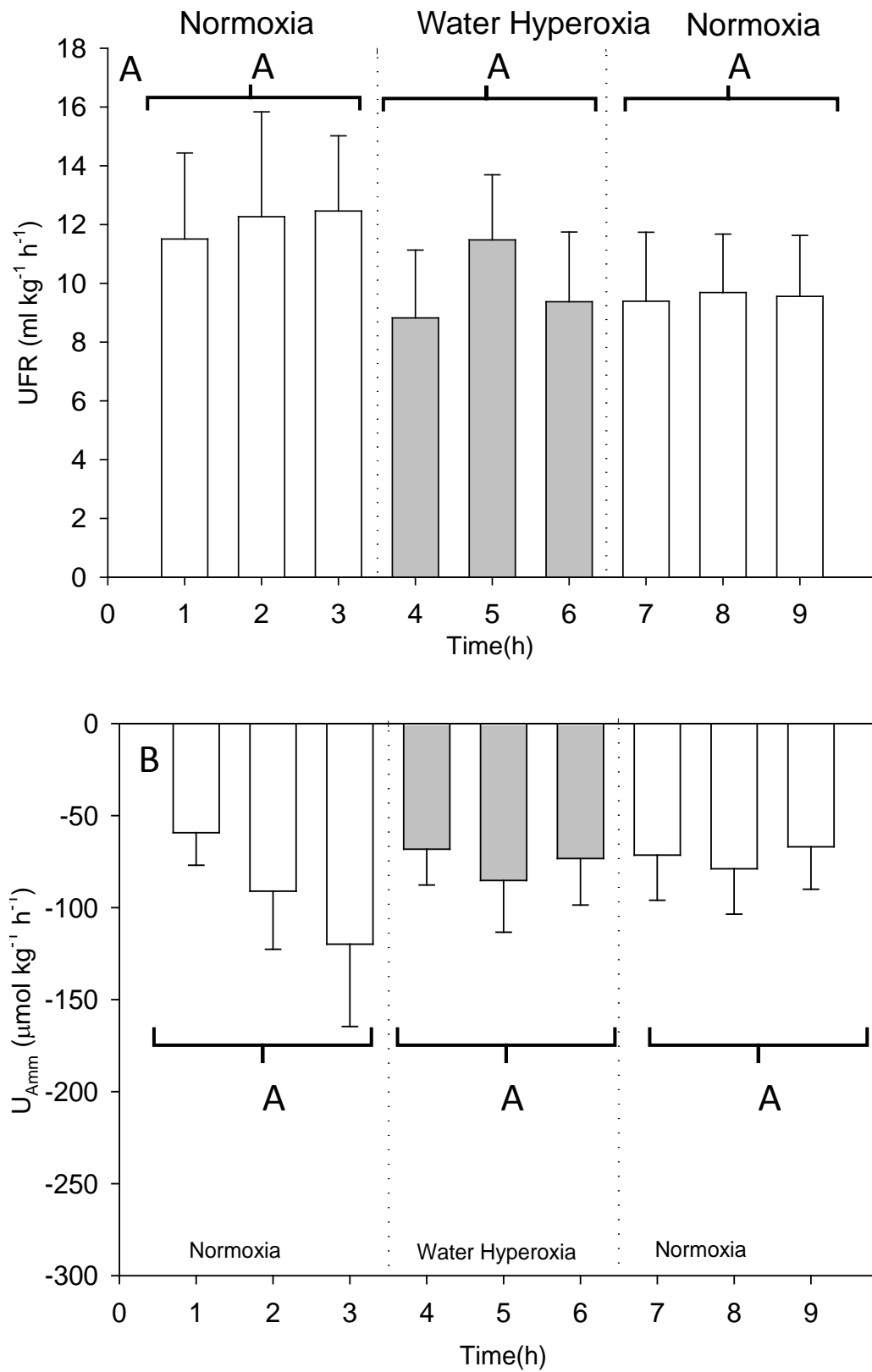
Supplementary Fig. S1

**Fig. S1.** The effect of **aerial hypoxia** (aquatic normoxia) on (A) urine flow rate (UFR) and (B) urinary excretion rate of total ammonia ( $U_{\text{Amm}}$ ) in *A. gigas*. Aerial hypoxia was applied during a 3-h experimental treatment period, following a 3-h normoxic control period, and was followed by a 3-h normoxic recovery period. Measurements were made over 1-h intervals. Means  $\pm$  SEM ( $N = 9$ ). There were no significant differences (i.e.  $P > 0.05$ ) among the overall means of the 3-h periods, nor were any of the means in the 1-h intervals significantly different from the overall normoxic control mean (i.e.  $P > 0.05$ ).



Supplementary Fig. S2

**Fig. S2.** The effect of **aerial hyperoxia** (aquatic normoxia) on (A) urine flow rate (UFR) and (B) urinary excretion rate of total ammonia ( $U_{\text{Amm}}$ ) in *A. gigas*. Aerial hyperoxia was applied during a 3-h experimental treatment period, following a 3-h normoxic control period, and was followed by a 3-h normoxic recovery period. Measurements were made over 1-h intervals. Means  $\pm$  SEM (N = 9). There were no significant differences (i.e.  $P > 0.05$ ) among the overall means of the 3-h periods, nor were any of the means in the 1-h intervals significantly different from the overall normoxic control mean (i.e.  $P > 0.05$ ).



Supplementary Fig. S3

**Fig. S3.** The effect of **aquatic hyperoxia** (aerial normoxia) on (A) urine flow rate (UFR) and (B) urinary excretion rate of total ammonia ( $U_{\text{Amm}}$ ) in *A. gigas*. Aquatic hyperoxia was applied during a 3-h experimental treatment period, following a 3-h normoxic control period, and was followed by a 3-h normoxic recovery period. Measurements were made over 1-h intervals. Means  $\pm$  SEM (N = 9). There were no significant differences (i.e.  $P > 0.05$ ) among the overall means of the 3-h periods, nor were any of the means in the 1-h intervals significantly different from the overall normoxic control mean (i.e.  $P > 0.05$ ).

### Supplementary Table S1

Urine composition and flow rate (UFR) in *A. gigas* under control day-time conditions. Means  $\pm$  SEM (N = 29 measurements on 11 animals).

[Na <sup>+</sup> ] <sub>u</sub> (mmol L <sup>-1</sup> )	0.22 $\pm$ 0.06
[K <sup>+</sup> ] <sub>u</sub> (mmol L <sup>-1</sup> )	0.10 $\pm$ 0.01
[Cl <sup>-</sup> ] <sub>u</sub> (mmol L <sup>-1</sup> )	0.17 $\pm$ 0.03
[Total Ammonia] <sub>u</sub> (mmol L <sup>-1</sup> )	10.81 $\pm$ 1.37
[Urea-N] <sub>u</sub> (mmol-N L <sup>-1</sup> )	6.79 $\pm$ 1.58
Urine Flow Rate (ml kg <sup>-1</sup> h <sup>-1</sup> )	12.23 $\pm$ 1.05

## Supplementary Table S2

A. Pearson's correlation coefficients for plasma components of *A. gigas* (N = 8). The one significant correlation is highlighted in bold.

	[Total CO <sub>2</sub> ] <sub>p</sub>	[Ammonia] <sub>p</sub>	[Urea-N] <sub>p</sub>	[Cl <sup>-</sup> ] <sub>p</sub>	[Na <sup>+</sup> ] <sub>p</sub>
[Ammonia] <sub>p</sub>	<b>-0.738*</b>				
[Urea-N] <sub>p</sub>	-0.581	0.276			
[Cl <sup>-</sup> ] <sub>p</sub>	-0.354	0.178	0.101		
[Na <sup>+</sup> ] <sub>p</sub>	-0.429	0.280	0.272	0.611	
[K <sup>+</sup> ] <sub>p</sub>	0.175	-0.600	0.322	-0.350	-0.115

\*P < 0.05

B. Pearson's correlation coefficients for components of overnight urine collections of *A. gigas* (N = 28 collections from 11 fish). Significant correlations are highlighted in bold.

	UFR	[TotalCO <sub>2</sub> ]	[Amm]	[Urea-N]	[Cl <sup>-</sup> ]	[Na <sup>+</sup> ]
[TotalCO <sub>2</sub> ]	0.167					
[Amm]	0.112	<b>0.645***</b>				
[Urea-N]	0.056	<b>0.420*</b>	0.281			
[Cl <sup>-</sup> ]	0.142	0.056	0.213	-0.156		
[Na <sup>+</sup> ]	-0.196	0.171	-0.210	0.089	0.146	
[K <sup>+</sup> ]	-0.107	<b>0.748***</b>	<b>0.400*</b>	0.160	-0.086	<b>0.506**</b>

\*P < 0.05, \*\*P < 0.01, \*\*\*P < 0.001



## Supplementary Table S3

A. Urinary concentrations (mmol L<sup>-1</sup>) of Na<sup>+</sup> ([Na<sup>+</sup>]<sub>u</sub>), K<sup>+</sup> ([K<sup>+</sup>]<sub>u</sub>), Cl<sup>-</sup> ([Cl<sup>-</sup>]<sub>u</sub>), total ammonia ([Amm]<sub>u</sub>), and urea-N ([Urea-N]<sub>u</sub>) of *A. gigas* subjected to **aerial hypoxia** (aquatic normoxia) during the experimental treatment period. Hourly values, as well as mean values (in bold) for the 3-h pre-treatment control period, 3-h treatment period, and 3-h post-treatment recovery period are shown. Means ± SEM (N). Overall means in 3-h periods not sharing the same letter are significantly different (P < 0.05).

	0-1h Control	1-2h Control	2-3h Control	<b>Mean Control</b>	3-4h Aerial Hypoxia	4-5h Aerial Hypoxia	5-6h Aerial Hypoxia	<b>Mean Aerial Hypoxia</b>	6-7h Recovery	7-8h Recovery	8-9h Recovery	<b>Mean Recovery</b>
[Na <sup>+</sup> ] <sub>u</sub>	0.29	0.36	0.36	<b>0.34<sup>A</sup></b>	0.17	0.15	0.16	<b>0.16<sup>B</sup></b>	0.17	0.11*	0.29	<b>0.19<sup>B</sup></b>
SEM (8)	0.16	0.20	0.20	<b>0.19</b>	0.07	0.05	0.08	<b>0.07</b>	0.09	0.02	0.21	<b>0.10</b>
[K <sup>+</sup> ] <sub>u</sub>	0.09	0.10	0.12	<b>0.10</b>	0.14	0.12	0.07	<b>0.11</b>	0.10	0.10	0.10	<b>0.10</b>
SEM (8)	0.01	0.02	0.03	<b>0.02</b>	0.05	0.04	0.01	<b>0.03</b>	0.03	0.03	0.03	<b>0.03</b>
[Cl <sup>-</sup> ] <sub>u</sub>	0.22	0.21	0.23	<b>0.22</b>	0.13	0.16	0.17	<b>0.15</b>	0.12	0.12	0.12	<b>0.12</b>
SEM (8)	0.09	0.08	0.08	<b>0.08</b>	0.03	0.06	0.05	<b>0.04</b>	0.02	0.02	0.02	<b>0.02</b>
[Amm] <sub>u</sub>	12.10	9.20	11.12	<b>10.81</b>	11.20	12.70	14.07	<b>12.66</b>	12.01	11.83	12.60	<b>12.15</b>
SEM (8)	3.32	1.66	2.14	<b>2.09</b>	2.71	2.66	2.89	<b>2.68</b>	2.72	2.87	2.77	<b>2.64</b>
[Urea-N] <sub>u</sub>	0.78	0.80	0.92	<b>0.83</b>	0.77	0.85	0.78	<b>0.80</b>	0.84	0.89	0.78	<b>0.84</b>
SEM (8)	0.23	0.22	0.24	<b>0.21</b>	0.23	0.23	0.23	<b>0.23</b>	0.24	0.26	0.24	<b>0.25</b>

B. Urinary concentrations (mmol L<sup>-1</sup>) of Na<sup>+</sup> ([Na<sup>+</sup>]<sub>u</sub>), K<sup>+</sup> ([K<sup>+</sup>]<sub>u</sub>), Cl<sup>-</sup> ([Cl<sup>-</sup>]<sub>u</sub>), total ammonia ([Amm]<sub>u</sub>), and urea-N ([Urea-N]<sub>u</sub>) of *A. gigas* subjected to **aerial hyperoxia** (aquatic normoxia) during the experimental treatment period. Hourly values, as well as mean values (in bold) for the 3-h pre-treatment control period, 3-h treatment period, and 3-h post-treatment recovery period are shown. Means ± SEM (N).

	0-1h Control	1-2h Control	2-3h Control	<b>Mean Control</b>	3-4h Aerial Hyperoxia	4-5h Aerial Hyperoxia	5-6h Aerial Hyperoxia	<b>Mean Aerial Hyperoxia</b>	6-7h Recovery	7-8h Recovery	8-9h Recovery	<b>Mean Recovery</b>
[Na <sup>+</sup> ] <sub>u</sub>	0.19	0.15	0.17	<b>0.17</b>	0.18	0.15	0.13	<b>0.15</b>	0.12	0.14	0.12	<b>0.13</b>
SEM (5)	0.03	0.05	0.06	<b>0.03</b>	0.06	0.05	0.04	<b>0.05</b>	0.04	0.06	0.04	<b>0.05</b>
[K <sup>+</sup> ] <sub>u</sub>	0.08	0.06	0.07	<b>0.07</b>	0.07	0.06	0.06	<b>0.06</b>	0.06	0.07	0.07	<b>0.07</b>
SEM (5)	0.01	0.02	0.02	<b>0.02</b>	0.02	0.02	0.01	<b>0.02</b>	0.01	0.02	0.01	<b>0.01</b>
[Cl <sup>-</sup> ] <sub>u</sub>	0.09	0.08	0.08	<b>0.08</b>	0.08	0.07	0.08	<b>0.08</b>	0.08	0.08	0.09	<b>0.08</b>
SEM (5)	0.01	0.01	0.01	<b>0.00</b>	0.01	0.01	0.01	<b>0.01</b>	0.01	0.01	0.01	<b>0.01</b>
[Amm] <sub>u</sub>	9.13	7.15	10.30	<b>8.86</b>	11.35	12.40	9.25	<b>10.35</b>	10.27	10.12	12.89	<b>11.10</b>
SEM (5)	3.80	2.74	4.20	<b>3.24</b>	4.50	4.40	3.86	<b>4.17</b>	4.04	4.10	5.23	<b>4.42</b>
[Urea-N] <sub>u</sub>	0.50	0.63	0.77	<b>0.63</b>	0.84	0.83	0.82	<b>0.83</b>	0.86	0.92	0.71	<b>0.83</b>
SEM (5)	0.31	0.29	0.32	<b>0.31</b>	0.34	0.34	0.33	<b>0.34</b>	0.34	0.28	0.33	<b>0.31</b>

C. Urinary concentrations (mmol L<sup>-1</sup>) of Na<sup>+</sup> ([Na<sup>+</sup>]<sub>u</sub>), K<sup>+</sup> ([K<sup>+</sup>]<sub>u</sub>), Cl<sup>-</sup> ([Cl<sup>-</sup>]<sub>u</sub>), total ammonia ([Amm]<sub>u</sub>), and urea-N ([Urea-N]<sub>u</sub>) of *A. gigas* subjected to **aquatic hypoxia** (aerial normoxia) during the experimental treatment period. Hourly values, as well as mean values (in bold) for the 3-h pre-treatment control period, 3-h treatment period, and 3-h post-treatment recovery period are shown. Means ± SEM (N). \* indicates significant difference from mean Control value (P < 0.05).

	0-1h Control	1-2h Control	2-3h Control	<b>Mean Control</b>	3-4h Aquatic Hypoxia	4-5h Aquatic Hypoxia	5-6h Aquatic Hypoxia	<b>Mean Aquatic Hypoxia</b>	6-7h Recovery	7-8h Recovery	8-9h Recovery	<b>Mean Recovery</b>
[Na <sup>+</sup> ] <sub>u</sub>	0.24	0.14	0.16	<b>0.15</b>	0.19	0.16	0.15	<b>0.17</b>	0.17	0.25	0.26	<b>0.23</b>
SEM (9)	0.04	0.04	0.04	<b>0.04</b>	0.06	0.04	0.04	<b>0.04</b>	0.04	0.11	0.09	<b>0.07</b>
[K <sup>+</sup> ] <sub>u</sub>	0.09	0.11	0.19	<b>0.13</b>	0.11	0.08*	0.07*	<b>0.09</b>	0.09	0.08*	0.10	<b>0.09</b>
SEM (9)	0.01	0.02	0.09	<b>0.03</b>	0.02	0.01	0.01	<b>0.01</b>	0.02	0.01	0.01	<b>0.01</b>
[Cl <sup>-</sup> ] <sub>u</sub>	0.18	0.17	0.18	<b>0.18</b>	0.25	0.21	0.19	<b>0.22</b>	0.16	0.21	0.19	<b>0.18</b>
SEM (9)	0.02	0.02	0.05	<b>0.02</b>	0.07	0.04	0.04	<b>0.04</b>	0.04	0.03	0.03	<b>0.03</b>
[Amm] <sub>u</sub>	11.93	12.94	11.93	<b>13.64</b>	11.02	14.91	13.08	<b>12.72</b>	14.33	11.31	12.29	<b>12.64</b>
SEM (9)	3.41	3.58	3.05	<b>3.04</b>	3.12	4.67	4.12	<b>3.86</b>	4.08	2.86	3.29	<b>3.32</b>
[Urea-N] <sub>u</sub>	0.34	0.54	0.47	<b>0.45</b>	0.56	0.54	0.41	<b>0.50</b>	0.56	0.55	0.82	<b>0.64</b>
SEM (9)	0.20	0.25	0.22	<b>0.22</b>	0.28	0.26	0.21	<b>0.25</b>	0.24	0.27	0.32	<b>0.27</b>

D. Urinary concentrations (mmol L<sup>-1</sup>) of Na<sup>+</sup> ([Na<sup>+</sup>]<sub>u</sub>), K<sup>+</sup> ([K<sup>+</sup>]<sub>u</sub>), Cl<sup>-</sup> ([Cl<sup>-</sup>]<sub>u</sub>), total ammonia ([Amm]<sub>u</sub>), and urea-N ([Urea-N]<sub>u</sub>) of *A. gigas* subjected to **aquatic hyperoxia** (aerial normoxia) during the experimental treatment period. Hourly values, as well as mean values (in bold) for the 3-h pre-treatment control period, 3-h treatment period, and 3-h post-treatment recovery period are shown. Means ± SEM (N).

	0-1h Control	1-2h Control	2-3h Control	<b>Mean Control</b>	3-4h Aquatic Hyperoxia	4-5h Aquatic Hyperoxia	5-6h Aquatic Hyperoxia	<b>Mean Aquatic Hyperoxia</b>	6-7h Recovery	7-8h Recovery	8-9h Recovery	<b>Mean Recovery</b>
[Na <sup>+</sup> ] <sub>u</sub>	0.15	0.14	0.13	<b>0.14</b>	0.12	0.12	0.12	<b>0.12</b>	0.13	0.13	0.13	<b>0.13</b>
SEM (7)	0.13	0.15	0.03	<b>0.10</b>	0.03	0.03	0.03	<b>0.03</b>	0.03	0.03	0.03	<b>0.03</b>
[K <sup>+</sup> ] <sub>u</sub>	0.07	0.08	0.09	<b>0.08</b>	0.07	0.06	0.07	<b>0.07</b>	0.08	0.08	0.08	<b>0.08</b>
SEM (7)	0.02	0.02	0.02	<b>0.02</b>	0.02	0.02	0.02	<b>0.02</b>	0.02	0.02	0.02	<b>0.02</b>
[Cl <sup>-</sup> ] <sub>u</sub>	0.21	0.15	0.15	<b>0.17</b>	0.15	0.15	0.16	<b>0.15</b>	0.16	0.181	0.15	<b>0.17</b>
SEM (7)	0.05	0.03	0.02	<b>0.03</b>	0.03	0.04	0.04	<b>0.04</b>	0.05	0.03	0.04	<b>0.04</b>
[Amm] <sub>u</sub>	7.34	10.45	9.19	<b>8.99</b>	8.57	9.61	8.30	<b>8.29</b>	9.19	9.41	7.01	<b>8.53</b>
SEM (7)	2.48	3.27	2.94	<b>2.56</b>	2.87	3.37	2.97	<b>3.02</b>	3.44	3.03	2.60	<b>2.83</b>
[Urea-N] <sub>u</sub>	0.65	0.59	0.71	<b>0.65</b>	0.59	0.76	0.60	<b>0.65</b>	0.68	0.63	0.59	<b>0.63</b>
SEM (7)	0.24	0.22	0.27	<b>0.25</b>	0.23	0.29	0.23	<b>0.25</b>	0.25	0.24	0.22	<b>0.24</b>

E. Urinary excretion rates ( $\mu\text{mol kg}^{-1} \text{h}^{-1}$ ) of  $\text{Na}^+$  ( $U_{\text{Na}}$ ),  $\text{K}^+$  ( $U_{\text{K}}$ ),  $\text{Cl}^-$  ( $U_{\text{Cl}}$ ), total ammonia ( $U_{\text{Amm}}$ ), and urea-N ( $U_{\text{Urea-N}}$ ), and urine flow rates (UFR) of *A. gigas* subjected to **aerial hypoxia** (aquatic normoxia) during the experimental treatment period. Hourly values, as well as mean values (in bold) for the 3-h pre-treatment control period, 3-h treatment period, and 3-h post-treatment recovery period are shown. Means  $\pm$  SEM (N). Overall means in 3-h periods not sharing the same letter are significantly different ( $P < 0.05$ ).

	0-1h Control	1-2h Control	2-3h Control	<b>Mean Control</b>	3-4h Aerial Hypoxia	4-5h Aerial Hypoxia	5-6h Aerial Hypoxia	<b>Mean Aerial Hypoxia</b>	6-7h Recovery	7-8h Recovery	8-9h Recovery	<b>Mean Recovery</b>
$U_{\text{Na}}$	3.65	4.43	4.06	<b>4.05<sup>A</sup></b>	1.61	1.40	2.03	<b>1.68<sup>B</sup></b>	2.12	1.58	3.05	<b>2.25<sup>AB</sup></b>
SEM (8)	2.16	2.54	2.50	<b>2.40</b>	0.73	0.65	0.89	<b>0.73</b>	1.07	0.47	1.93	<b>1.03</b>
$U_{\text{K}}$	1.00	0.93	0.88	<b>0.94</b>	1.43	1.33	0.79	<b>1.18</b>	1.28	1.39	1.37	<b>1.35</b>
SEM (8)	0.15	0.22	0.09	<b>0.12</b>	0.74	0.55	0.10	<b>0.41</b>	0.48	0.61	0.62	<b>0.57</b>
$U_{\text{Cl}}$	2.72	2.25	1.83	<b>2.27</b>	1.06	1.64	2.16	<b>1.62</b>	1.43	1.70	1.43	<b>1.52</b>
SEM (8)	1.34	0.90	0.52	<b>0.85</b>	0.20	0.78	0.76	<b>0.49</b>	0.37	0.51	0.36	<b>0.41</b>
$U_{\text{Amm}}$	120.40	81.03	91.67	<b>97.70</b>	96.75	127.77	155.14	<b>126.55</b>	126.10	141.16	139.29	<b>135.52</b>
SEM (8)	41.68	16.11	19.61	<b>18.45</b>	21.32	27.26	35.11	<b>26.24</b>	31.23	41.23	44.16	<b>36.81</b>
$U_{\text{Urea-N}}$	7.28	6.78	8.03	<b>7.36</b>	6.99	9.01	8.48	<b>8.16</b>	7.90	9.03	7.06	<b>7.99</b>
SEM (8)	2.19	2.06	2.51	<b>2.18</b>	2.40	2.47	2.69	<b>2.46</b>	2.12	2.63	2.16	<b>2.25</b>
UFR	11.27	10.57	10.37	<b>10.73</b>	8.94	8.86	12.78	<b>10.19</b>	11.57	13.71	11.84	<b>12.37</b>
SEM (8)	1.77	2.11	2.42	<b>2.00</b>	1.03	1.49	2.17	<b>0.87</b>	1.60	2.55	2.04	<b>2.03</b>

F. Urinary excretion rates ( $\mu\text{mol kg}^{-1} \text{h}^{-1}$ ) of  $\text{Na}^+$  ( $U_{\text{Na}}$ ),  $\text{K}^+$  ( $U_{\text{K}}$ ),  $\text{Cl}^-$  ( $U_{\text{Cl}}$ ), total ammonia ( $U_{\text{Amm}}$ ), and urea-N ( $U_{\text{Urea-N}}$ ), and urine flow rates (UFR) of *A. gigas* subjected to **aerial hyperoxia** (aquatic normoxia) during the experimental treatment period. Hourly values, as well as mean values (in bold) for the 3-h pre-treatment control period, 3-h treatment period, and 3-h post-treatment recovery period are shown. Means  $\pm$  SEM (N). Overall means in 3-h periods not sharing the same letter are significantly different, and asterisks indicate means in 1-h intervals that are significantly different from the overall normoxic control mean ( $P < 0.05$ ).

	0-1h Control	1-2h Control	2-3h Control	<b>Mean Control</b>	3-4h Aerial Hyperoxia	4-5h Aerial Hyperoxia	5-6h Aerial Hyperoxia	<b>Mean Aerial Hyperoxia</b>	6-7h Recovery	7-8h Recovery	8-9h Recovery	<b>Mean Recovery</b>
$U_{\text{Na}}$	2.09	2.35	2.49	<b>2.31<sup>A</sup></b>	2.09	2.25	1.84	<b>2.06<sup>A</sup></b>	0.76*	1.55	1.01	<b>1.11<sup>B</sup></b>
SEM (5)	0.30	0.88	1.02	<b>0.46</b>	0.98	0.99	0.97	<b>0.98</b>	0.28	0.68	0.2	<b>0.30</b>
$U_{\text{K}}$	0.92	0.86	0.91	<b>0.90</b>	0.69	0.80	0.70	<b>0.73</b>	0.61	0.78	0.76	<b>0.72</b>
SEM (5)	0.26	0.21	0.28	<b>0.23</b>	0.22	0.13	0.15	<b>0.17</b>	0.18	0.12	0.18	<b>0.14</b>
$U_{\text{Cl}}$	1.03	1.18	1.05	<b>1.09</b>	0.89	1.01	1.05	<b>0.98</b>	0.70	0.97	0.90	<b>0.86</b>
SEM (5)	0.18	0.10	0.15	<b>0.12</b>	0.31	0.26	0.25	<b>0.27</b>	0.14	0.16	0.15	<b>0.11</b>
$U_{\text{Amm}}$	87.26	101.40	117.7	<b>102.1</b>	98.00	111.7	85.5	<b>98.4</b>	105.12	103.22	140.00	<b>116.11</b>
SEM (5)	29.94	29.05	35.83	<b>30.76</b>	34.92	29.61	21.02	<b>27.71</b>	36.22	33.05	55.49	<b>40.53</b>
$U_{\text{Urea-N}}$	5.29	10.57	10.19	<b>8.64</b>	7.82	9.68	8.53	<b>8.67</b>	9.59	10.31	8.14	<b>9.34</b>
SEM (5)	3.98	5.34	5.23	<b>4.67</b>	3.61	4.53	4.05	<b>3.99</b>	4.09	4.15	4.47	<b>4.08</b>
UFR	11.45	14.71	12.73	<b>12.97</b>	11.10	14.71	13.05	<b>12.95</b>	9.36	12.04	10.60	<b>10.67</b>
SEM (5)	1.86	1.74	1.69	<b>1.02</b>	3.27	3.07	2.98	<b>3.04</b>	1.85	1.89	2.14	<b>1.43</b>

G. Urinary excretion rates ( $\mu\text{mol kg}^{-1} \text{h}^{-1}$ ) of  $\text{Na}^+$  ( $U_{\text{Na}}$ ),  $\text{K}^+$  ( $U_{\text{K}}$ ),  $\text{Cl}^-$  ( $U_{\text{Cl}}$ ), total ammonia ( $U_{\text{Amm}}$ ), and urea-N ( $U_{\text{Urea-N}}$ ), and urine flow rates (UFR) of *A. gigas* subjected to **aquatic hypoxia** (aerial normoxia) during the experimental treatment period. Hourly values, as well as mean values (in bold) for the 3-h pre-treatment control period, 3-h treatment period, and 3-h post-treatment recovery period are shown. Means  $\pm$  SEM (N). \* indicates significant difference from mean Control value ( $P < 0.05$ ).

	0-1h Control	1-2h Control	2-3h Control	Mean Control	3-4h Aquatic Hypoxia	4-5h Aquatic Hypoxia	5-6h Aquatic Hypoxia	Mean Aquatic Hypoxia	6-7h Recovery	7-8h Recovery	8-9h Recovery	Mean Recovery
$U_{\text{Na}}$	2.30	2.33	2.57	<b>2.40</b>	1.93	2.21	2.93	<b>2.36</b>	2.89	4.82	3.74	<b>3.82</b>
SEM (9)	1.06	1.21	1.20	<b>1.14</b>	1.16	1.18	1.21	<b>1.16</b>	1.24	2.19	1.31	<b>1.48</b>
$U_{\text{K}}$	1.14	1.36	2.35	<b>1.62</b>	0.70*	0.84*	1.11	<b>0.88</b>	1.16*	1.21*	1.36	<b>1.24</b>
SEM (9)	0.34	0.25	1.51	<b>0.58</b>	0.15	0.20	0.14	<b>0.14</b>	0.30	0.27	0.30	<b>0.25</b>
$U_{\text{Cl}}$	1.46	1.54	2.55	<b>1.76</b>	1.28	1.39	1.54	<b>1.37</b>	1.66	2.58	1.88	<b>1.95</b>
SEM (9)	0.35	0.40	0.41	<b>0.33</b>	0.41	0.42	0.48	<b>0.43</b>	0.44	0.85	0.52	<b>0.59</b>
$U_{\text{Amm}}$	140.88	172.77	136.53	<b>155.67</b>	74.19*	120.21	183.58	<b>126.00</b>	157.27	149.17	158.42	<b>154.95</b>
SEM (9)	46.87	57.84	34.93	<b>42.47</b>	26.22	38.29	67.55	<b>41.06</b>	44.00	45.07	53.25	<b>46.60</b>
$U_{\text{Urea-N}}$	3.64	0.54	5.15	<b>3.11</b>	5.11	6.95	4.63	<b>5.56</b>	6.42	5.55	10.18	<b>7.38</b>
SEM (9)	1.54	0.25	2.77	<b>1.47</b>	2.85	4.11	1.96	<b>2.93</b>	2.99	3.15	4.07	<b>3.31</b>
UFR	13.73	12.83	13.66	<b>13.39</b>	7.95*	10.04	13.87	<b>10.62</b>	12.41	14.19	12.60	<b>13.07</b>
SEM (9)	2.19	2.58	2.95	<b>2.31</b>	2.51	2.67	2.84	<b>2.37</b>	1.97	3.08	2.12	<b>2.34</b>

H. Urinary excretion rates ( $\mu\text{mol kg}^{-1} \text{h}^{-1}$ ) of  $\text{Na}^+$  ( $U_{\text{Na}}$ ),  $\text{K}^+$  ( $U_{\text{K}}$ ),  $\text{Cl}^-$  ( $U_{\text{Cl}}$ ), total ammonia ( $U_{\text{Amm}}$ ), and urea-N ( $U_{\text{Urea-N}}$ ), and urine flow rates (UFR) of *A. gigas* subjected to **aquatic hyperoxia** (aerial normoxia) during the experimental treatment period. Hourly values, as well as mean values (in bold) for the 3-h pre-treatment control period, 3-h treatment period, and 3-h post-treatment recovery period are shown. Means  $\pm$  SEM (N).

	0-1h Control	1-2h Control	2-3h Control	<b>Mean Control</b>	3-4h Aquatic Hyperoxia	4-5h Aquatic Hyperoxia	5-6h Aquatic Hyperoxia	<b>Mean Aquatic Hyperoxia</b>	6-7h Recovery	7-8h Recovery	8-9h Recovery	<b>Mean Recovery</b>
$U_{\text{Na}}$	1.90	2.16	1.77	<b>1.94</b>	0.96	1.43	1.02	<b>1.14</b>	1.17	1.26	1.02	<b>1.15</b>
SEM (7)	0.55	0.85	0.48	<b>0.53</b>	0.36	0.42	0.37	<b>0.35</b>	0.44	0.40	0.30	<b>0.38</b>
$U_{\text{K}}$	0.62	0.69	1.07	<b>0.79</b>	0.55	0.59	0.60	<b>0.58</b>	0.65	0.66	0.75	<b>0.69</b>
SEM (7)	0.17	0.23	0.27	<b>0.19</b>	0.16	0.14	0.16	<b>0.15</b>	0.18	0.12	0.19	<b>0.15</b>
$U_{\text{Cl}}$	1.80	1.63	1.85	<b>1.76</b>	1.06	1.52	1.31	<b>1.30</b>	1.21	1.41	1.16	<b>1.26</b>
SEM (7)	0.35	0.50	0.37	<b>0.28</b>	0.25	0.34	0.34	<b>0.23</b>	0.31	0.22	0.17	<b>0.22</b>
$U_{\text{Amm}}$	59.30	91.08	119.89	<b>90.09</b>	68.28	85.23	73.34	<b>75.61</b>	71.50	78.91	64.90	<b>71.77</b>
SEM (7)	17.65	31.57	44.74	<b>27.89</b>	19.48	28.13	25.27	<b>23.71</b>	24.49	24.62	23.07	<b>23.18</b>
$U_{\text{Urea-N}}$	8.15	6.17	12.67	<b>9.00</b>	6.73	8.32	7.86	<b>7.64</b>	7.68	7.18	6.62	<b>7.16</b>
SEM (7)	4.79	4.02	6.14	<b>4.56</b>	3.47	3.92	4.04	<b>3.78</b>	3.97	3.86	3.66	<b>3.83</b>
UFR	11.50	12.27	12.46	<b>12.08</b>	8.82	11.48	9.37	<b>9.89</b>	9.39	9.69	9.56	<b>9.54</b>
SEM (7)	2.93	3.57	2.56	<b>2.25</b>	2.31	2.21	2.37	<b>2.06</b>	2.35	1.99	2.07	<b>2.09</b>