Table S1. Physical indices and total lipid content of liver, muscle and gonad in five batches of Chinese tongue sole (mean ± standard error).

Parameter	HD			RZ			WF1			WF2			WF3	
	F[1] (n=5)	P (n=18)	M (n=6)	F(n=7)	P (n=6)	M (n=17)	F (n=8)	P (n=13)	M (n=9)	F (n=10)	P (n=9)	M (n=11)	F (n=25)	M (n=3)
BW	158.74±25.80[a]	125.45±13.91[ab]	75.31±4.79[b]	138.22±7.3[a]	115.33±7.56[b]	100.71±2.30[b]	219.84±15.7[a]	146.94±7.53[b]	143.67±6.7[b]	264.34±35.23[a]	169.86±12.19[b]	155.44±7.80[b]	154.91±5.63	170.11±3.74
BL	28.20±1.30[a]	26.92±0.90[ab]	23.17±0.41[b]	27.97±0.8[a]	26.30±0.57[ab]	25.18±0.23[b]	31.76±1.01[a]	28.48±0.44[b]	27.93±0.46[b]	33.88±1.52[a]	29.84±0.51[b]	28.16±0.43[b]	28.5±0.28	29.2±0.42
LW	2.22±0.47	1.89±0.26	1.16±0.16	1.75±0.17	1.57±0.17	1.53±0.07	2.45±0.29	2.93±0.26	2.79±0.24	2.57±0.34	2.29±0.24	1.95±0.17	1.58±0.09	2.07±0.18
CF	0.68±0.03	0.60±0.02	0.60±0.01	0.63±0.03	0.63±0.03	0.63±0.02	0.69±0.05	0.63±0.02	0.66±0.02	0.65±0.02	0.63±0.03	0.69±0.03	0.66±0.01	0.69±0.04
HSI	1.36±0.09	1.44±0.06	1.51±0.14	1.28±0.15	1.36±0.13	1.52±0.06	1.11±0.08[a]	2.01±0.17[b]	2.21±0.32[b]	0.97±0.03[a]	1.33±0.07[b]	1.26±0.09[b]	1.02±0.05	1.21±0.08
Total lipid														
Liver	13.28±0.33[a]	17.18±0.69[b]	14.17±0.38[a]	31.33±1.19	30.79±1.28	34.56±0.67	25.29±0.66	26.01±0.59	22.74±1.01	26.26±0.64	25.00±0.97	26.34±0.88	24.99±1.35	24.85±0.59
Muscle	3.70±0.18	3.78±0.10	3.84±0.31	3.45±0.08	3.46±0.11	3.44±0.07	2.71±0.08[a]	3.35±0.06[b]	3.06±0.10[ab]	3.25±0.02	3.31±0.15	3.34±0.15	2.60±0.02	2.64±0.04
Gonad				28.35±2.07	28.06±6.62	30.31±1.05	10.65±0.41[a]	18.29±1.37[b]	22.62±20[c]	19.40±0.32[a]	21.76±0.36[b]	22.77±0.49[b]	18.99±0.31[a]	22.06±0.57[b]

[1] F, P, and M represents female, pseudomale, and male, respectively.

[2] Data within the same row and within a same fish batch not sharing a superscript letter were significantly (P<0.05) different.

[3] "n" in the parentheses indicate the fish number of each batch.

[4] There was not enough pseudomale in WF3 for the fatty acid analysis.

[5] BW, body weight; BL, body length; LW, liver weight; CF, condition factor; HSI, hepatosomatic index.

Table S2. The brain fatty acid composition of experimental fish (%TFA, mean ± standard error).

[1] F, P, and M represents female, pseudomale, and male, respectively.

Fatty acid	HD			RZ			WF1			WF2			WF3	
	F	P	M	F	P	M	F	P	M	F	P	M	F	M
14:0	0.75±0.03	0.78±0.06	0.87±0.06	0.98±0.17	0.99±0.09	0.85±0.02	0.71±0.10	0.79±0.11	0.87±0.07	0.63±0.02	0.64±0.03	0.65±0.03	0.69±0.01	0.76±0.04
16:0	16.82±0.02^{a}	15.83±0.02^{b}	15.68±0.39^{b}	17.34±0.30^{a}	16.56±0.15^{ab}	15.81±0.24^{b}	16.57±0.30	16.42±0.15	16.74±0.33	15.79±0.31	16.83±0.16	16.32±0.43	15.1±0.34	15.85±0.24
18:0	11.30±0.07	11.21±0.15	10.91±0.53	11.43±0.38	11.15±0.73	10.37±0.78	13.02±0.76	12.69±0.21	12.58±0.57	13.29±0.32	13.7±0.20	12.99±0.39	12.05±0.21	11.49±0.21
ΣSFA	28.87±0.06	27.82±0.18	27.47±0.84	29.75±0.22^{a}	28.70±0.60^{ab}	27.03±1.00^{b}	30.30±0.78	29.90±0.30	30.19±0.76	29.71±0.60	31.17±0.33	29.95±0.84	27.85±0.41	28.10±0.40
16:1*n*-7	2.75±0.13	2.67±0.14	2.91±0.33	2.12±0.35	2.15±0.30	2.75±0.08	1.54±0.24	1.57±0.17	1.58±0.09	1.09±0.05^{a}	1.24±0.05^{ab}	1.38±0.06^{b}	1.39±0.09	1.65±0.14
17:1*n*-7	1.16±0.01	1.20±0.03	1.25±0.04	1.14±0.09	1.10±0.07	1.21±0.02	1.60±0.04	1.42±0.10	1.42±0.08	1.40±0.11	1.21±0.03	1.27±0.02	0.37±0.04	0.39±0.05
18:1*n*-9c	17.96±0.62	18.50±0.48	18.9±0.51	17.96±0.16^{ab}	17.72±0.53^{a}	19.61±0.28^{b}	20.92±0.22^{a}	19.1±0.75^{ab}	18.7±0.24^{b}	19.80±0.85	18.91±0.29	20.02±0.66	19.7±1.04	19.61±0.32
ΣMUFA	21.87±0.74	22.37±0.59	23.06±0.82	21.21±0.36	20.97±0.78	23.58±0.35	24.06±0.35^{a}	22.08±0.68^{ab}	21.69±0.25^{b}	22.29±0.99	21.35±0.32	22.68±0.68	21.47±0.98	21.66±0.42
18:2*n*-6c	1.60±0.22	1.44±0.13	1.59±0.08	1.98±0.63	2.91±0.91	2.51±0.97	5.50±0.33	4.61±0.10	5.00±0.20	3.58±0.14	3.86±0.20	3.58±0.23	5.51±0.11	5.22±0.18
20:4*n*-6	0.32±0.05	0.26±0.04	0.28±0.05	0.25±0.02^{ab}	0.22±0.03^{a}	0.35±0.01^{b}	0.25±0.03	0.28±0.03	0.20±0.01	0.29±0.02	0.22±0.01	0.27±0.01	0.23±0.02	0.28±0.06
Σ*n*-6PUFA	1.92±0.17	1.70±0.10	1.87±0.12	2.23±0.61	3.14±0.92	2.85±0.96	5.75±0.32	4.89±0.13	5.20±0.19	3.87±0.16	4.07±0.20	3.85±0.23	5.74±0.09	5.51±0.21
20:3*n*-3	1.26±0.08	1.43±0.04	1.38±0.06	1.48±0.07	1.47±0.07	1.62±0.29	1.09±0.02	1.27±0.07	1.11±0.02	1.41±0.02	1.34±0.03	1.36±0.02	1.35±0.04	1.41±0.03
20:5*n*-3	5.77±0.07	5.80±0.15	5.64±0.38	4.57±0.13^{a}	5.53±0.28^{ab}	5.63±0.18^{b}	4.74±0.33	4.39±0.26	4.38±0.19	4.11±0.13	3.83±0.16	4.00±0.08	3.55±0.13	3.64±0.12
22:5*n*-3	2.10±0.07	2.05±0.16	1.91±0.15	2.09±0.04	2.21±0.12	2.30±0.10	2.06±0.20	2.31±0.15	1.83±0.06	2.14±0.11	1.96±0.06	1.80±0.11	1.60±0.08	1.44±0.11
22:6*n*-3	22.39±0.48	23.57±0.67	24.16±0.08	24.67±0.78	23.00±1.88	21.29±0.39	20.38±0.97	20.18±0.50	21.00±0.39	20.94±0.89	22.09±0.74	20.74±0.86	20.47±0.76	20.74±1.07
Σ*n*-3PUFA	32.54±1.01	32.85±0.51	31.82±0.93	32.8±0.99	32.21±1.76	30.84±0.76	28.27±0.45	28.14±0.95	28.33±0.28	28.60±0.66	29.22±0.57	27.89±0.98	26.96±0.97	27.24±0.87

[2] Data within the same row and within a same fish batch not sharing a superscript letter were significantly (P<0.05) different.

[3] There was not enough pseudomale in WF3 for the fatty acid analysis.

[4] SFA, saturated fatty acids; MUFA, mono-unsaturated fatty acids; n-6PUFA, n-6 poly-unsaturated fatty acids; n-3 PUFA, n-3 poly-unsaturated fatty acid.

Table S3. The eye fatty acid composition of experimental fish (%TFA, mean ± standard error).

Fatty acid	HD			RZ			WF1			WF2			WF3	
	F	P	M	F	P	M	F	P	M	F	P	M	F	M
14:0	2.48	2.17	2.65	1.21±0.17	1.26±0.16	1.40±0.24	1.41±0.09	1.96±0.28	1.72±0.11	1.22±0.14	1.46±0.06	1.17±0.07	0.73±0.10	0.94±0.17
16:0	16.79	16.59	17.17	15.42±0.39	15.33±0.68	15.07±0.34	16.53±0.49	16.77±0.78	15.29±0.33	16.67±0.46	18.19±0.26	18.58±0.66	14.16±0.81	15.91±0.56
18:0	6.16	6.96	6.06	7.50±0.09	7.58±0.37	7.63±0.45	8.25±0.64	7.13±0.29	7.19±0.58	6.91±0.19	6.80±0.06	6.87±0.41	7.36±0.28	7.43±0.21
ΣSFA	25.43	25.72	25.88	24.14±0.39	24.16±1.21	24.1±0.29	26.19±1.23	25.86±0.90	24.20±0.67	24.81±0.45	26.45±0.24	26.62±1.01	22.24±1.13	24.28±0.84
16:1*n*-7	5.06	4.17	3.94	1.64±0.12	1.82±0.15	2.08±0.18	1.68±0.07	2.57±0.23	2.22±0.26	1.42±0.17	1.46±0.07	1.15±0.05	0.97±0.08	1.28±0.22
18:1*n*-9c	10.07	10.09	10.50	9.08±0.40	9.29±0.98	9.49±0.30	9.87±0.30	11.29±0.10	10.81±0.72	8.71±0.56	8.73±0.21	7.42±0.46	7.82±0.30[a]	9.85±0.61[b]
ΣMUFA	15.13	14.26	14.44	10.72±0.52	11.12±1.12	11.57±0.35	12.18±0.29[a]	14.41±0.18[b]	13.57±0.60[ab]	10.13±0.71	10.19±0.28	8.57±0.45	8.79±0.35	11.13±0.83
18:2*n*-6c	2.79	2.76	3.24	2.42±0.19	2.92±0.72	3.22±0.52	9.60±0.12	10.03±0.62	9.46±0.87	8.15±0.44	8.57±0.34	7.02±0.34	9.21±0.36	10.59±0.70
Σ*n*-6PUFA	2.79	2.76	3.24	2.42±0.19	2.92±0.72	3.22±0.52	9.60±0.12	10.03±0.62	9.46±0.87	8.15±0.44	8.57±0.34	7.02±0.34	9.21±0.36	10.59±0.70
20:3*n*-3	1.12	1.22	1.05	1.46±0.11	1.65±0.34	1.28±0.09	1.66±0.12	1.12±0.11	1.16±0.23	1.51±0.12	1.59±0.02	1.56±0.06	1.21±0.08	1.15±0.02
20:5*n*-3	7.95	6.04	6.09	6.39±0.38	6.95±0.33	6.03±0.07	5.85±0.62	6.33±0.16	6.34±0.27	5.94±0.40	6.36±0.21	5.04±0.46	2.87±0.09[a]	3.3±0.04[b]
22:5*n*-3	3.29	3.29	2.98	5.13±0.19[a]	3.86±0.04[b]	4.20±0.11[b]	3.10±0.31	3.18±0.21	3.48±0.28	3.90±0.20	4.22±0.06	4.14±0.21	3.32±0.23	3.02±0.11
22:6*n*-3	34.07	37.91	36.32	44.60±1.73	44.34±2.95	43.89±0.64	29.81±0.36[a]	25.87±0.28[b]	27.72±0.27[c]	41.09±1.72	38.81±1.07	44.09±1.80	49.38±1.98	42.63±2.71
Σ*n*-3PUFA	46.42	48.46	46.43	57.58±1.50	56.80±3.65	55.4±0.75	41.08±0.53[a]	37.06±0.48[b]	39.24±0.58[ab]	52.44±1.800	50.98±1.15	54.83±1.52	56.77±1.93	50.09±2.61

[1] F, P, and M represents female, pseudomale, and male, respectively.

[2] Data within the same row and within a same fish batch not sharing a superscript letter were significantly (P<0.05) different.

[3] There was not enough pseudomale in WF3 for the fatty acid analysis.

[4] SFA, saturated fatty acids; MUFA, mono-unsaturated fatty acids; n-6PUFA, n-6 poly-unsaturated fatty acids; n-3 PUFA, n-3 poly-unsaturated fatty acid.

Table S4. The heart fatty acid composition of experimental fish (%TFA, mean ± standard error).

Fatty acid	HD			RZ			WF1			WF2			WF3	
	F	P	M	F	P	M	F	P	M	F	P	M	F	M
14:0	2.21±0.23	1.81±0.44	1.61±0.24	2.52±0.28	2.51±0.06	2.33±0.08	1.76±0.11	1.82±0.11	1.97±0.14	1.54±0.09	1.95±0.08	1.71±0.15	1.22±0.13	1.43±0.09
16:0	18.41±0.26	18.17±0.45	19.51±0.18	18.82±0.02	20.03±0.44	19.81±0.57	18.38±0.24	19.11±0.18	18.92±0.55	17.61±0.21^{a}	18.35±0.27^{a}	19.86±0.20^{b}	18.10±0.69	18.51±0.32
18:0	8.39±0.63	9.84±1.11	9.81±0.73	7.79±1.03	7.39±0.08	7.53±0.35	9.88±0.18	9.32±0.17	8.82±0.37	10.75±0.08^{a}	9.13±0.35^{ab}	9.41±0.46^{b}	11.83±1.38	9.07±0.57
ΣSFA	29.01±0.15	29.82±0.57	30.94±0.6	29.13±0.78	29.93±0.46	29.67±0.59	30.02±0.35	30.25±0.18	29.72±0.53	29.90±0.04^{ab}	29.43±0.10^{a}	30.98±0.46^{b}	31.15±1.91	29.01±0.32
16:1*n*-7	3.54±0.71	2.87±1.10	2.54±0.74	2.29±0.31^{a}	3.24±0.01^{b}	2.57±0.13^{ab}	1.67±0.11	2.08±0.18	2.37±0.20	1.10±0.10	1.81±0.22	1.59±0.27	1.19±0.10	1.32±0.22
17:1*n*-7	0.76±0.04	0.82±0.03	0.77±0.03	0.61±0.19	0.47±0.00	0.46±0.02	0.61±0.03^{a}	0.49±0.02^{ab}	0.45±0.05^{b}	0.75±0.06^{a}	0.49±0.06^{b}	0.51±0.04^{b}	0.45±0.12	0.37±0.02
18:1*n*-9c	8.54±0.58	9.05±0.68	9.32±0.38	8.24±0.06	9.66±0.76	9.01±0.20	9.10±0.26	9.45±0.57	10.98±0.74	7.83±0.29	9.65±0.46	8.95±0.58	8.80±0.31	9.57±0.58
ΣMUFA	11.61±0.04	11.18±1.12	11.56±0.12	11.14±0.06^{a}	13.36±0.77^{b}	12.03±0.15^{ab}	11.38±0.37	12.02±0.73	13.80±0.85	9.69±0.33	11.95±0.63	11.05±0.80	10.43±0.29	11.26±0.76
18:2*n*-6c	3.20±0.17	3.14±0.29	3.34±0.21	3.14±0.06	2.95±0.08	3.16±0.32	13.01±0.15	12.72±0.55	13.00±0.35	10.73±0.02^{a}	11.22±0.18^{a}	9.17±0.48^{b}	15.20±1.04	15.19±0.66
Σ*n*-6PUFA	3.20±0.17	3.14±0.29	3.34±0.21	3.14±0.06	2.95±0.08	3.16±0.32	13.01±0.15	12.72±0.55	13.00±0.35	10.73±0.02^{a}	11.22±0.18^{a}	9.17±0.48^{b}	15.20±1.04	15.19±0.66
20:3*n*-3	2.65±0.32	2.91±0.36	2.64±0.19	2.82±0.31	2.65±0.17	3.02±0.13	2.53±0.08^{a}	2.45±0.03^{ab}	2.11±0.14^{b}	3.51±0.02^{a}	2.65±0.05^{b}	2.90±0.17^{b}	3.77±0.25	2.99±0.28
20:5*n*-3	11.61±0.43	9.30±0.58	10.00±0.93	10.75±0.03	10.96±0.95	10.96±0.85	8.64±0.32	8.85±0.24	8.01±0.52	7.88±0.04	7.93±0.37	7.35±0.26	5.29±0.16	5.28±0.32
22:5*n*-3	3.19±0.10	3.04±0.33	2.84±0.18	3.29±0.06	3.13±0.06	3.44±0.16	2.67±0.13	2.51±0.19	2.31±0.18	3.29±0.36	3.31±0.11	3.14±0.10	2.43±0.10	2.33±0.14
22:6*n*-3	24.26±0.49	27.61±2.72	30.42±1.50	24.17±0.13	21.25±0.39	23.57±0.70	20.45±0.41	20.76±1.34	19.88±0.33	24.34±0.73^{ab}	21.76±0.39^{a}	25.41±1.19^{b}	24.13±0.89	23.75±1.27
Σ*n*-3PUFA	40.21±1.83	40.74±2.31	42.05±1.68	41.03±0.21	38.00±1.57	40.99±0.43	34.29±0.64	34.57±1.28	32.31±0.91	39.01±0.35	35.65±0.63	38.80±1.16	35.62±1.09	34.35±1.35

[1] F, P, and M represents female, pseudomale, and male, respectively.

[2] Data within the same row and within a same fish batch not sharing a superscript letter were significantly (P<0.05) different.

[3] There was not enough pseudomale in WF3 for the fatty acid analysis.

[4] SFA, saturated fatty acids; MUFA, mono-unsaturated fatty acids; n-6PUFA, n-6 poly-unsaturated fatty acids; n-3 PUFA, n-3 poly-unsaturated fatty acid.

Table S5. The gill fatty acid composition of experimental fish (%TFA, mean ± standard error).

Fatty acid	HD			RZ			WF1			WF2			WF3	
	F	P	M	F	P	M	F	P	M	F	P	M	F	M
14:0	2.3±0.25	1.48±0.33	1.59±0.21	2.19±0.29	2.34±0.04	2.66±0.11	1.34±0.10[a]	2.01±0.03[b]	1.81±0.22[ab]	2.03±0.15	1.98±0.17	2.01±0.23	1.03±0.06	1.39±0.16
16:0	15.73±0.24	14.84±0.59	14.77±0.36	16.14±0.37[a]	17.36±0.39[ab]	17.99±0.29[b]	15.74±0.20[a]	17.06±0.24[b]	16.32±0.22[ab]	16.76±0.17[a]	18.09±0.51[ab]	19.62±0.85[b]	15.17±0.11[a]	16.57±0.18[b]
18:0	7.73±0.75	8.80±0.78	8.52±0.54	8.71±0.56	8.07±0.32	7.43±0.19	9.88±0.18	8.54±0.14	8.53±0.70	9.63±0.38	9.86±0.40	9.33±0.74	10.14±0.35	8.83±0.47
ΣSFA	25.75±0.43	25.12±0.54	24.87±0.25	27.03±0.32	27.77±0.66	28.08±0.23	26.95±0.3	27.60±0.34	26.66±0.70	28.42±0.44	29.93±0.32	30.95±1.39	26.34±0.4	26.79±0.42
16:1*n*-7	4.59±0.71	3.33±0.81	3.22±0.62	2.69±0.36	3.21±0.19	3.47±0.21	2.03±0.11[a]	2.53±0.02[b]	2.44±0.19[ab]	1.91±0.13	1.85±0.21	2.05±0.34	1.33±0.04[a]	1.77±0.15[b]
17:1*n*-7	1.26±0.24	1.32±0.20	1.51±0.02	0.93±0.08[a]	0.76±0.01[ab]	0.67±0.01[b]	1.03±0.02	0.71±0.16	0.61±0.01	0.92±0.08	0.81±0.10	0.87±0.04	0.70±0.06	0.53±0.01
18:1*n*-9c	10.86±0.30	11.39±0.30	11.9±0.60	11.56±0.13	11.86±0.35	11.25±0.07	12.49±0.11	12.98±0.3	12.61±0.18	12.35±0.41	12.81±0.27	11.88±0.72	12.95±0.29	13.63±0.56
ΣMUFA	16.71±0.32	16.03±0.91	16.64±1.15	15.85±0.13	16.35±0.29	15.85±0.25	15.55±0.19	16.23±0.17	15.66±0.36	15.18±0.51	15.47±0.35	14.80±1.09	14.97±0.37	15.93±0.42
18:2*n*-6c	3.58±0.09	3.52±0.11	3.69±0.15	3.51±0.07	3.58±0.28	3.35±0.23	14.62±0.39	15.12±0.02	15.16±0.02	12.95±0.17	13.17±0.15	11.87±0.69	16.77±1.04	16.37±1.46
20:4*n*-6	0.33±0.02	0.21±0.05	0.27±0.01	0.25±0.08	0.21±0.03	0.23±0.03	0.17±0.04	0.15±0.04	0.15±0.01	0.42±0.04[a]	0.17±0.02[b]	0.45±0.02[a]	0.22±0.01	0.17±0.02
Σ*n*-6PUFA	3.91±0.11	3.74±0.12	3.96±0.15	4.21±0.16	4.37±0.25	4.31±0.23	14.79±0.42	15.28±0.02	15.31±0.03	13.38±0.19	13.33±0.16	12.32±0.71	16.99±1.03	16.54±1.47
18:3*n*-3	0.51±0.02	0.39±0.08	0.42±0.08	0.62±0.04[a]	0.66±0.04[a]	0.89±0.04[b]	0.53±0.03[a]	0.67±0.02[b]	0.63±0.02[ab]	0.71±0.06	0.71±0.10	0.74±0.12	0.55±0.08	0.81±0.11
20:3*n*-3	3.15±0.16	3.47±0.27	3.55±0.21	4.22±0.36[a]	3.56±0.12[ab]	3.18±0.06[b]	3.10±0.12	2.61±0.07	2.92±0.23	4.16±0.14	3.21±0.32	3.54±0.33	4.12±0.06[a]	3.35±0.06[b]
20:5*n*-3	9.92±0.65	8.43±0.46	8.00±0.44	8.82±0.56	9.39±0.57	9.75±0.44	6.68±0.17	6.95±0.26	6.95±0.58	5.63±0.36	6.56±0.31	5.83±0.80	3.64±0.05	4.21±0.36
22:5*n*-3	4.21±0.26	4.13±0.30	4.10±0.38	4.16±0.2	4.27±0.08	4.02±0.17	3.51±0.02[a]	3.10±0.18[ab]	2.83±0.16[b]	3.55±0.22	3.3±0.18	3.38±0.15	2.62±0.16	2.51±0.08
22:6*n*-3	18.81±0.08	22.25±2.25	21.89±1.88	18.94±0.37	18.25±0.15	18.00±0.11	14.26±0.95	13.03±0.47	13.68±0.31	14.84±0.32	15.71±0.19	16.14±0.71	16.45±0.86	15.24±0.86
Σ*n*-3PUFA	36.60±0.59	38.68±2.18	37.96±1.28	36.76±0.3	36.14±0.54	35.85±0.31	28.08±0.75	26.37±0.73	27.02±0.98	28.88±0.44	29.49±0.47	29.62±0.81	27.37±0.92	26.12±0.90

[1] F, P, and M represents female, pseudomale, and male, respectively.

[2] Data within the same row and within a same fish batch not sharing a superscript letter were significantly (P<0.05) different.

[3] There was not enough pseudomale in WF3 for the fatty acid analysis.

[4] SFA, saturated fatty acids; MUFA, mono-unsaturated fatty acids; n-6PUFA, n-6 poly-unsaturated fatty acids; n-3 PUFA, n-3 poly-unsaturated fatty acid.

Table S6. The intestine fatty acid composition of experimental fish (%TFA, mean ± standard error).

Fatty acid	HD			RZ			WF1			WF2			WF3	
	F	P	M	F	P	M	F	P	M	F	P	M	F	M
14:0	4.27±0.18	4.43±0.07	3.89±0.06	5.04±0.08	4.98±0.39	4.60±0.40	3.02±0.33	3.53±0.22	3.23±0.05	3.28±0.10	3.03±0.16	3.01±0.12	2.60±0.20	2.64±0.13
16:0	17.75±0.82	17.68±0.37	17.58±1.44	20.13±0.39	21.13±0.62	21.33±1.48	18.36±0.80	18.31±1.19	18.06±1.36	17.33±0.27[a]	17.75±0.02[a]	18.74±0.23[b]	17.57±1.08	17.84±0.11
18:0	5.45±0.41	5.13±0.25	5.96±0.81	5.97±0.49	6.05±0.63	6.53±0.76	7.54±1.32	5.83±0.65	5.89±0.28	6.72±0.59	6.15±0.24	7.29±0.13	7.62±0.55	7.02±0.14
ΣSFA	27.47±1.23	27.25±0.55	27.42±2.31	31.14±0.75	32.16±0.95	32.45±2.18	28.92±1.78	27.67±1.67	27.18±1.6	27.33±0.79	26.93±0.22	29.04±0.28	27.79±1.68	27.49±0.23
14:1*n*-5	0.46±0.02	0.50±0.01	0.45±0.03	0.55±0.03	0.69±0.09	0.61±0.13	0.36±0.03	0.37±0.02	0.37±0.03	0.43±0.00	0.43±0.01	0.43±0.01	0.45±0.03	0.46±0.00
16:1*n*-7	5.11±0.20	6.29±0.20	5.31±0.84	4.36±0.20	4.33±0.37	3.99±0.44	3.47±0.72	4.46±0.54	4.15±0.42	2.96±0.18	3.15±0.15	2.70±0.07	2.50±0.21	2.71±0.01
18:1*n*-9c	7.84±0.05	7.98±0.18	8.25±0.08	9.32±0.07[a]	10.25±0.2[b]	9.57±0.28[ab]	11.66±0.78	12.37±0.63	12.54±0.91	11.04±0.21	11.28±0.63	10.44±0.06	11.67±0.42	12.05±0.04
ΣMUFA	13.84±0.20	15.02±0.38	14.3±0.87	14.59±0.14	15.67±0.27	14.6±0.80	15.78±1.42	17.40±0.73	17.32±1.29	14.70±0.38	15.18±0.79	13.85±0.06	14.8±0.59	15.36±0.05
18:2*n*-6c	3.66±0.09	3.91±0.16	3.80±0.35	3.08±0.11	3.26±0.16	3.25±0.30	18.36±1.53	19.06±0.71	18.81±1.22	16.87±0.39[a]	16.49±0.28[ab]	14.81±0.54[b]	20.66±0.48	21.02±0.31
20:2*n*-6	1.52±0.14	1.71±0.15	1.42±0.32	1.26±0.17	1.05±0.28	0.97±0.21	0.71±0.14	0.88±0.16	0.84±0.05	0.81±0.33	0.57±0.36	0.48±0.23	0.66±0.06	0.75±0.01
20:3*n*-6	0.99±0.09	0.91±0.03	0.86±0.19	1.61±0.07	1.66±0.11	1.36±0.30	0.13±0.03	0.12±0.01	0.15±0.03	0.59±0.06	0.40±0.08	0.43±0.10	0.14±0.03	0.16±0.02
20:4*n*-6	0.38±0.01[a]	0.28±0.00[b]	0.34±0.01[a]	0.24±0.03	0.21±0.02	0.31±0.08	0.16±0.03	0.11±0.01	0.11±0.00	0.22±0.02	0.21±0.00	0.23±0.01	0.13±0.06	0.13±0.03
Σ*n*-6PUFA	6.55±0.12	6.80±0.34	6.42±0.46	6.19±0.23	6.18±0.38	5.88±0.33	19.36±1.63	20.17±0.85	19.9±1.30	18.47±0.67	17.68±0.54	15.95±0.8	21.6±0.45	22.06±0.3
18:3*n*-3	0.90±0.03	0.96±0.06	0.77±0.08	1.33±0.04	1.38±0.09	1.26±0.16	1.89±0.28	2.22±0.15	2.19±0.12	2.05±0.01	2.02±0.04	1.62±0.18	2.25±0.12	2.23±0.06
20:3*n*-3	1.09±0.01[a]	1.2±0.06[ab]	1.31±0.06[b]	1.13±0.05	1.07±0.01	1.14±0.11	1.07±0.13	0.88±0.03	0.93±0.06	1.19±0.03	1.20±0.09	1.44±0.13	1.46±0.10	1.29±0.00
20:5*n*-3	10.76±0.36	11.54±0.44	11.24±1.39	9.19±0.87	8.28±0.98	8.70±0.87	7.36±0.46	8.25±0.66	7.78±0.15	6.78±0.20	7.40±0.38	5.98±0.50	5.04±0.59	5.75±0.20
22:5*n*-3	2.76±0.03[a]	3.57±0.26[b]	3.29±0.10[ab]	3.16±0.31	2.80±0.38	2.82±0.29	2.44±0.44	1.88±0.08	1.94±0.16	2.77±0.10	2.78±0.12	3.38±0.45	2.64±0.56	1.85±0.15
22:6*n*-3	20.01±0.38	20.59±0.68	20.67±0.33	17.97±0.16	17.22±0.52	17.95±0.92	11.6±0.99	10.65±0.43	11.26±0.55	15.00±0.51	14.61±0.55	17.04±0.87	13.8±0.59	13.44±0.21
Σ*n*-3PUFA	35.52±0.70	37.85±0.50	37.29±1.48	32.79±0.8	30.74±0.73	31.86±1.99	24.37±0.83	23.87±1.02	24.11±0.64	27.79±0.7	28.01±0.93	29.46±0.79	25.19±0.96	24.56±0.17

[1] F, P, and M represents female, pseudomale, and male, respectively.

[2] Data within the same row and within a same fish batch not sharing a superscript letter were significantly (P<0.05) different.

[3] There was not enough pseudomale in WF3 for the fatty acid analysis.

[4] SFA, saturated fatty acids; MUFA, mono-unsaturated fatty acids; n-6PUFA, n-6 poly-unsaturated fatty acids; n-3 PUFA, n-3 poly-unsaturated fatty acid.

Table S7. The skin fatty acid composition of experimental fish (%TFA, mean ± standard error).

Fatty acid	HD			RZ			WF1			WF2			WF3	
	F	P	M	F	P	M	F	P	M	F	P	M	F	M
14:0	3.44±0.27	3.69±0.43	3.74±0.44	4.34±0.08[a]	3.22±0.12[b]	3.28±0.31[b]	2.56±0.43	3.22±0.11	3.77±0.31	3.64±0.14	3.37±0.16	3.14±0.21	2.95±0.41	3.06±0.36
16:0	18.71±0.35	20.03±0.24	20.39±0.78	17.62±0.28	19.06±0.63	19.65±0.57	19.06±0.69	19.30±0.25	18.26±0.29	21.65±0.52	20.96±0.24	22.97±0.6	18.61±0.38	19.79±0.66
18:0	4.92±0.50	4.88±0.44	5.22±0.27	4.00±0.15	5.78±0.51	5.15±0.57	8.55±1.20[a]	5.15±0.66[ab]	3.95±0.66[b]	5.95±0.45	4.82±0.14	5.18±0.39	5.51±1.08	4.95±1.13
ΣSFA	27.07±0.35	28.61±0.47	29.34±1.26	25.96±0.36	28.06±0.95	28.09±0.75	30.18±1.47[a]	27.66±0.57[ab]	25.98±0.22[b]	31.24±0.82	29.15±0.26	31.29±0.63	27.07±0.91	27.80±1.07
14:1*n*-5	0.33±0.02	0.37±0.03	0.43±0.03	0.41±0.01[a]	0.33±0.03[ab]	0.32±0.02[b]	0.25±0.00	0.25±0.01	0.31±0.02	0.32±0.02	0.35±0.03	0.28±0.05	0.47±0.06	0.38±0.03
16:1*n*-7	7.77±0.28[a]	7.02±0.48[ab]	6.12±0.34[b]	6.06±0.18	5.13±0.32	5.24±0.38	3.41±0.56[a]	5.14±0.54[ab]	5.82±0.42[b]	4.70±0.17	5.30±0.15	4.99±0.29	4.36±0.48	4.71±0.44
17:1*n*-7	0.40±0.15	0.24±0.03	0.38±0.16	0.49±0.02[a]	0.27±0.03[b]	0.49±0.01[a]	0.45±0.04	0.40±0.03	0.44±0.01	0.4±0.04	0.41±0.04	0.43±0.01	0.27±0.11	0.28±0.12
18:1*n*-9c	12.65±0.28	13.87±0.48	12.85±0.26	13.53±0.42	13.51±0.05	13.54±0.44	14.43±0.13	16.85±0.73	16.84±0.66	16.84±0.39	17.98±0.56	17.45±0.67	16.67±0.65	17.03±0.86
ΣMUFA	21.16±0.30	21.51±0.81	19.77±0.10	20.49±0.53	19.24±0.35	19.59±0.65	18.55±0.4	22.64±1.28	23.41±0.86	22.26±0.59	24.04±0.64	23.14±0.97	21.77±0.62	22.40±0.74
18:2*n*-6c	3.58±0.05	3.64±0.10	4.32±0.52	3.69±0.15	3.67±0.34	3.64±0.24	15.72±0.87	15.05±0.06	15.51±0.09	13.97±0.48	13.58±0.42	12.63±0.18	16.01±0.96	15.10±0.97
20:2*n*-6	1.08±0.15	0.99±0.11	0.93±0.05	1.05±0.06	0.82±0.02	0.66±0.17	0.60±0.00	0.62±0.09	0.89±0.10	0.6±0.05	0.50±0.10	0.45±0.07	0.68±0.11	0.67±0.07
20:4*n*-6	0.22±0.02	0.26±0.01	0.20±0.03	0.34±0.03	0.34±0.07	0.32±0.07	0.43±0.04[a]	0.24±0.04[ab]	0.19±0.05[b]	0.28±0.05	0.23±0.03	0.20±0.02	0.16±0.02	0.22±0.04
Σ*n*-6PUFA	4.88±0.22	4.88±0.21	5.46±0.53	5.08±0.19	4.83±0.27	4.63±0.36	16.75±0.91	15.91±0.10	16.58±0.16	14.85±0.49	14.31±0.53	13.28±0.15	16.85±0.88	15.98±1.07
18:3*n*-3	0.85±0.03	0.83±0.13	0.92±0.10	1.51±0.12[a]	1.05±0.04[b]	1.49±0.03[a]	0.78±0.11[a]	1.45±0.16[ab]	1.76±0.14[b]	1.08±0.12	1.18±0.03	0.88±0.08	1.76±0.10	1.67±0.18
20:3*n*-3	1.36±0.07	1.36±0.07	1.48±0.21	1.54±0.04	1.73±0.21	1.58±0.19	1.63±0.17[a]	1.01±0.13[b]	0.71±0.09[b]	1.70±0.11	1.28±0.11	1.31±0.10	1.06±0.23	1.00±0.01
20:5*n*-3	10.21±0.2	8.96±0.56	8.59±0.64	8.06±0.38	9.26±0.33	8.89±0.43	7.86±0.11	7.04±0.14	7.09±0.42	6.82±0.20	6.47±0.24	6.14±0.07	4.68±0.21	5.21±0.01
22:5*n*-3	3.21±0.07	3.48±0.23	3.14±0.24	4.17±0.09	4.14±0.30	4.06±0.26	3.04±0.05	2.58±0.23	2.75±0.20	3.00±0.17	3.27±0.22	3.09±0.21	2.74±0.37	2.31±0.31
22:6*n*-3	17.89±0.31	20.32±1.17	18.96±0.73	17.37±0.15	16.65±0.24	17.22±0.35	13.14±0.4[a]	10.63±0.56[b]	10.26±0.40[b]	12.14±0.51	11.63±0.47	12.74±0.40	12.64±0.52	12.38±0.35
Σ*n*-3PUFA	33.51±0.21	34.95±1.27	33.09±1.40	32.65±0.06	32.82±0.22	33.23±0.93	26.45±0.29[a]	22.71±0.87[ab]	22.56±0.84[b]	24.74±0.82	23.83±0.88	24.16±0.56	22.88±0.69	22.56±0.75

[1] F, P, and M represents female, pseudomale, and male, respectively.

[2] Data within the same row and within a same fish batch not sharing a superscript letter were significantly (P<0.05) different.

[3] There was not enough pseudomale in WF3 for the fatty acid analysis.

[4] SFA, saturated fatty acids; MUFA, mono-unsaturated fatty acids; n-6PUFA, n-6 poly-unsaturated fatty acids; n-3 PUFA, n-3 poly-unsaturated fatty acid.

Table S8. The liver fatty acid composition of experimental fish (%TFA, mean ± standard error).

Fatty acid	HD			RZ			WF1			WF2			WF3	
	F	P	M	F	P	M	F	P	M	F	P	M	F	M
14:0	1.75±0.07	1.35±0.12	1.35±0.17	1.89±0.11	2.09±0.07	1.94±0.15	1.44±0.31	1.90±0.28	1.84±0.18	1.15±0.03	1.33±0.01	1.26±0.10	1.17±0.06	1.36±0.11
16:0	20.54±0.22	20.13±0.67	20.32±0.63	22.49±0.54	23.74±0.92	24.50±0.52	18.56±0.27	20.43±0.26	19.41±0.55	18.03±0.49^{a}	19.39±0.21^{b}	21.29±0.05^{c}	18.69±0.48^{a}	20.93±0.24^{b}
18:0	9.32±1.19	11.34±0.09	11.89±0.09	9.73±0.93	7.78±0.44	8.45±0.67	13.20±0.66^{a}	10.85±0.64^{ab}	9.99±0.30^{b}	14.29±0.10^{a}	12.40±0.26^{b}	11.96±0.09^{b}	12.98±0.31	11.45±0.84
ΣSFA	31.60±0.90	32.82±0.64	33.57±0.36	34.11±1.27	33.62±0.43	34.9±0.43	33.19±0.08^{a}	33.17±0.62^{a}	31.25±0.26^{b}	33.48±0.40^{ab}	33.12±0.22^{b}	34.52±0.16^{b}	32.85±0.73	33.73±0.83
14:1*n*-5	0.21±0.00	0.26±0.00	0.25±0.02	0.30±0.01	0.26±0.02	0.27±0.03	0.19±0.01	0.19±0.03	0.21±0.03	0.22±0.01	0.21±0.01	0.20±0.01	0.25±0.01	0.25±0.02
16:1*n*-7	3.32±0.68	1.55±0.24	1.63±0.34	2.10±0.48	3.03±0.23	3.07±0.52	1.35±0.07	1.98±0.44	2.01±0.16	0.90±0.01^{a}	1.34±0.08^{b}	1.09±0.08^{ab}	1.11±0.05	1.30±0.20
17:1*n*-7	0.35±0.00	0.31±0.02	0.32±0.03	0.29±0.03	0.35±0.03	0.33±0.02	0.24±0.04	0.26±0.16	0.23±0.02	0.23±0.01	0.28±0.02	0.21±0.02	0.26±0.03	0.23±0.02
18:1*n*-9c	7.50±0.62	5.86±0.45	6.29±0.38	7.44±0.43	7.95±0.14	7.76±0.57	7.83±0.27	9.14±1.40	9.45±0.47	6.67±0.19	7.85±0.56	7.56±0.27	7.99±0.16	8.10±0.59
ΣMUFA	11.38±1.30	7.97±0.71	8.49±0.74	10.13±0.88	11.60±0.11	11.43±1.07	9.61±0.18	11.57±1.71	11.90±0.64	8.02±0.19	9.68±0.67	9.06±0.21	9.61±0.23	9.87±0.82
18:2*n*-6c	3.14±0.11	2.53±0.33	2.66±0.32	2.72±0.07	3.25±0.54	2.85±0.08	13.43±0.31	14.31±0.31	13.63±0.58	12.88±0.41	13.83±0.76	11.23±0.65	16.61±1.91	18.11±0.82
20:4*n*-6	0.24±0.02	0.24±0.03	0.17±0.02	0.34±0.03	0.37±0.06	0.42±0.06	0.39±0.00	0.46±0.06	0.45±0.08	0.30±0.02	0.26±0.06	0.18±0.04	0.21±0.02	0.27±0.03
Σ*n*-6PUFA	3.38±0.09	2.77±0.36	2.83±0.34	3.06±0.06	3.63±0.49	3.27±0.03	13.82±0.30	14.77±0.25	14.08±0.55	13.18±0.42	14.09±0.79	11.41±0.69	16.82±1.93	18.38±0.84
18:3*n*-3	0.48±0.02	0.38±0.04	0.41±0.03	0.72±0.03^{a}	0.80±0.02^{ab}	0.86±0.03^{b}	0.57±0.03^{a}	1.19±0.17^{b}	0.91±0.05^{ab}	0.54±0.04^{a}	0.83±0.02^{b}	0.46±0.09^{a}	0.77±0.13	0.89±0.14
20:3*n*-3	2.18±0.03	2.70±0.13	2.66±0.38	2.61±0.13^{a}	2.38±0.05^{ab}	2.16±0.08^{b}	2.29±0.15	2.00±0.26	1.93±0.06	3.16±0.06	2.86±0.09	3.05±0.07	3.41±0.08	2.81±0.28
20:5*n*-3	12.46±0.33	10.03±0.22	11.07±1.01	10.60±0.45	12.28±0.46	12.02±0.49	9.79±0.58	9.64±0.32	9.15±0.55	8.44±0.19	9.64±0.48	8.32±0.72	6.01±0.45	6.46±0.48
22:5*n*-3	3.16±0.29	2.57±0.58	2.24±0.01	3.23±0.33	2.48±0.15	2.72±0.01	2.02±0.02	2.29±0.21	2.03±0.04	2.95±0.10^{a}	2.53±0.05^{b}	2.49±0.09^{b}	1.93±0.11	1.71±0.19
22:6*n*-3	24.32±0.83	30.42±1.94	28.28±1.85	23.00±0.41^{a}	20.48±0.24^{b}	19.86±0.64^{b}	18.35±0.32^{a}	14.15±0.64^{b}	15.58±0.08^{b}	20.66±0.64^{a}	17.40±0.65^{b}	22.42±0.65^{a}	19.43±1.90	17.14±1.31
Σ*n*-3PUFA	42.60±0.80	46.11±1.22	44.67±1.19	40.16±0.15^{a}	38.41±0.10^{b}	37.62±0.60^{b}	33.02±0.35^{a}	29.27±0.62^{b}	29.60±0.73^{ab}	35.75±0.61^{ab}	33.26±1.12^{a}	36.74±0.20^{b}	31.55±1.51	29.00±1.13

[1] F, P, and M represents female, pseudomale, and male, respectively.

[2] Data within the same row and within a same fish batch not sharing a superscript letter were significantly (P<0.05) different.

[3] There was not enough pseudomale in WF3 for the fatty acid analysis.

[4] SFA, saturated fatty acids; MUFA, mono-unsaturated fatty acids; n-6PUFA, n-6 poly-unsaturated fatty acids; n-3 PUFA, n-3 poly-unsaturated fatty acid.

Table S9. The muscle fatty acid composition of experimental fish (%TFA, mean ± standard error).

Fatty acid	HD			RZ			WF1			WF2			WF3	
	F	P	M	F	P	M	F	P	M	F	P	M	F	P
14:0	4.30±0.31	3.31±0.11	4.04±0.65	5.11±0.14[a]	4.78±0.10[ab]	4.31±0.27[b]	4.07±0.49	4.76±0.07	4.52±0.10	3.91±0.06	3.89±0.04	3.80±0.08	2.99±0.08	2.94±0.21
16:0	21.3±0.73	23.84±0.19	22.54±0.96	19.19±0.34[a]	20.23±0.23[ab]	21.01±0.08[b]	20.46±0.19	20.4±0.32	19.66±0.76	20.64±0.25	20.63±0.23	21.21±0.49	20.62±0.02	21.65±0.29
18:0	4.22±0.61	7.60±0.27	5.59±1.38	3.14±0.14	2.96±0.23	3.73±0.24	3.28±0.02[a]	2.83±0.06[b]	3.19±0.09[a]	3.03±0.12[ab]	2.91±0.05[a]	3.35±0.08[b]	5.14±0.40	5.04±0.37
ΣSFA	29.82±1.07	34.75±0.35	32.18±1.70	27.45±0.57	27.96±0.34	29.05±0.06	27.81±0.29	27.99±0.41	27.37±0.80	27.58±0.17	27.43±0.27	28.36±0.44	28.75±0.38	29.63±0.15
16:1*n*-7	8.71±0.77	5.70±0.25	6.30±0.98	7.10±0.26	7.56±0.55	6.02±0.48	5.92±0.18	6.23±0.12	5.91±0.09	6.30±0.10	6.42±0.14	6.32±0.13	4.75±0.25	4.52±0.43
17:1*n*-7	0.30±0.04	0.41±0.04	0.35±0.06	0.48±0.02[a]	0.41±0.01[ab]	0.37±0.03[b]	0.41±0.02	0.32±0.03	0.31±0.07	0.37±0.01	0.37±0.00	0.37±0.01	0.33±0.09	0.33±0.10
18:1*n*-9c	13.23±0.35	12.73±0.49	12.97±0.52	13.73±0.42	14.61±0.44	13.77±0.33	17.02±0.65	18.53±0.42	18.80±0.29	19.64±0.11	19.73±0.17	19.71±0.2	16.08±0.34	16.26±0.36
ΣMUFA	22.77±0.99	19.23±0.19	20.14±0.77	21.98±0.49	23.14±0.89	20.71±0.23	23.34±0.77	25.08±0.47	25.02±0.33	26.31±0.08	26.52±0.22	26.40±0.15	21.16±0.56	21.11±0.7
18:2*n*-6c	3.78±0.14	4.17±0.15	3.99±0.08	3.70±0.11	3.55±0.05	3.54±0.08	15.20±0.19	14.64±0.21	15.18±0.45	14.14±0.34[a]	13.42±0.14[a]	12.29±0.14[b]	16.51±0.46	14.65±0.77
20:4*n*-6	0.15±0.00	0.14±0.03	0.14±0.01	0.14±0.01	0.12±0.02	0.14±0.02	0.13±0.01	0.08±0.01	0.09±0.02	0.09±0.01	0.09±0.01	0.10±0.00	0.13±0.02	0.11±0.00
Σ*n*-6PUFA	3.93±0.14	4.31±0.18	4.13±0.09	3.84±0.12	3.67±0.05	3.69±0.09	15.34±0.20	14.72±0.2	15.27±0.47	14.23±0.34[a]	13.51±0.15[a]	12.39±0.14[b]	16.64±0.45	14.76±0.77
18:3*n*-3	1.13±0.01	0.79±0.23	0.99±0.21	1.76±0.05	1.75±0.03	1.66±0.04	1.80±0.12	1.90±0.02	1.89±0.07	1.75±0.03[a]	1.54±0.00[b]	1.38±0.05[c]	1.72±0.13	1.62±0.10
20:3*n*-3	0.79±0.08	1.27±0.02	0.99±0.18	0.84±0.05	0.79±0.06	0.88±0.03	0.61±0.06	0.50±0.01	0.50±0.03	0.53±0.01[a]	0.58±0.03[ab]	0.65±0.01[b]	0.97±0.07	0.94±0.06
20:5*n*-3	9.18±0.20	8.67±0.95	8.42±0.20	6.91±0.34	7.20±0.34	7.55±0.16	6.19±0.03	5.94±0.17	6.09±0.05	5.77±0.02	5.85±0.18	5.94±0.20	4.98±0.09	5.34±0.15
22:5*n*-3	2.90±0.12	3.04±0.45	2.76±0.15	4.01±0.14	3.58±0.16	3.61±0.08	2.51±0.20	2.40±0.17	2.17±0.09	2.33±0.13[a]	2.85±0.07[b]	2.77±0.12[ab]	2.56±0.28	2.20±0.15
22:6*n*-3	16.22±0.71	18.56±0.78	17.93±0.58	15.82±0.48	14.76±0.28	16.15±0.13	9.61±0.40	9.17±0.21	9.19±0.29	9.51±0.36	9.92±0.18	10.25±0.24	12.56±0.46	12.47±0.70
Σ*n*-3PUFA	30.22±1.05	32.33±0.83	31.10±0.26	29.34±0.69	28.07±0.64	29.85±0.07	20.72±0.52	19.92±0.23	19.85±0.39	19.89±0.22	20.75±0.37	21.00±0.53	22.77±0.70	22.56±0.83

[1] F, P, and M represents female, pseudomale, and male, respectively.

[2] Data within the same row and within a same fish batch not sharing a superscript letter were significantly (P<0.05) different.

[3] There was not enough pseudomale in WF3 for the fatty acid analysis.

[4] SFA, saturated fatty acids; MUFA, mono-unsaturated fatty acids; n-6PUFA, n-6 poly-unsaturated fatty acids; n-3 PUFA, n-3 poly-unsaturated fatty acid.

Table S10. The gonad fatty acid composition of experimental fish (%TFA, mean ± standard error).

Fatty acid	HD			RZ			WF1			WF2			WF3	
	F	P	M	F	P	M	F	P	M	F	P	M	F	M
14:0	2.27±0.15	1.70±0.30	1.50±0.14	2.50±0.60	1.73±0.13	1.76±0.12	1.65±0.13	1.21±0.07	1.30±0.09	1.82±0.11^{a}	1.59±0.20^{ab}	1.17±0.06^{b}	1.31±0.12	1.24±0.17
16:0	19.01±0.04^{a}	24.02±1.15^{b}	25.14±1.45^{b}	19.57±0.68	20.48±0.56	20.21±0.76	20.29±0.11	20.63±1.02	21.75±0.28	21.49±0.09	22.28±0.66	22.72±0.15	21.66±0.33	24.20±1.54
18:0	8.46±0.24^{a}	11.6±0.39^{b}	12.19±0.01^{b}	7.88±1.47	9.95±0.39	9.42±0.66	9.91±0.59	8.83±0.23	10.00±0.43	9.60±0.36	9.19±0.19	9.00±0.14	9.91±0.58	8.60±0.42
ΣSFA	29.73±0.15^{a}	37.31±1.30^{b}	38.83±1.6^{b}	29.94±1.61	32.16±0.76	31.38±0.23	31.84±0.47	30.67±1.04	33.05±0.06	32.90±0.48	33.05±0.75	32.89±0.14	32.88±0.34	34.04±1.25
16:1*n*-7	5.14±0.53	3.17±0.86	2.43±0.13	3.99±0.79	2.48±0.23	2.18±0.06	2.78±0.09^{a}	1.51±0.19^{b}	1.45±0.03^{b}	2.78±0.07^{a}	1.51±0.24^{b}	1.20±0.11^{b}	2.00±0.18^{a}	1.14±0.11^{b}
17:1*n*-7	0.84±0.04	0.82±0.01	0.70±0.02	0.73±0.11	0.57±0.03	0.51±0.03	0.49±0.08	0.54±0.07	0.74±0.06	0.61±0.05^{a}	0.56±0.05^{a}	0.82±0.03^{b}	0.41±0.05	0.40±0.030
18:1*n*-9c	10.38±0.17	10.37±0.38	11.39±0.59	12.12±0.33^{a}	9.59±0.14^{b}	8.80±0.32^{b}	10.89±0.49^{a}	8.34±0.60^{b}	8.75±0.34^{ab}	11.77±0.19^{a}	9.59±0.66^{b}	7.69±0.17^{c}	10.69±0.60^{a}	7.66±0.51^{b}
ΣMUFA	16.36±0.68	14.35±1.04	14.53±0.48	16.84±1.01^{a}	12.64±0.39^{b}	11.49±0.36^{b}	14.17±0.53^{a}	10.38±0.84^{b}	10.94±0.32^{b}	15.17±0.26^{a}	11.67±0.87^{b}	9.70±0.31^{b}	13.10±0.84^{a}	9.20±0.57^{b}
18:2*n*-6c	3.11±0.03	4.84±0.66	5.09±0.17	3.72±0.11	3.56±0.23	3.99±0.28	13.16±0.37	14.17±0.83	13.05±0.05	12.00±0.26	12.81±0.37	13.08±0.28	15.92±0.11	14.81±1.33
20:4*n*-6	0.28±0.01^{a}	0.23±0.02^{ab}	0.16±0.01^{b}	0.20±0.03	0.26±0.02	0.19±0.03	0.17±0.04^{ab}	0.22±0.02^{a}	0.08±0.03^{b}	0.33±0.01^{a}	0.24±0.00^{b}	0.20±0.01^{c}	0.35±0.00^{a}	0.12±0.01^{b}
Σ*n*-6PUFA	3.39±0.04	5.07±0.68	5.25±0.16	3.92±0.09	3.82±0.25	4.17±0.26	13.33±0.34	14.40±0.82	13.13±0.09	12.33±0.26	13.05±0.37	13.28±0.28	16.27±0.11	14.93±1.33
18:3*n*-3	0.62±0.03	0.49±0.06	0.70±0.09	0.96±0.20	0.55±0.03	0.55±0.02	0.91±0.14^{a}	0.51±0.02^{ab}	0.46±0.00^{b}	0.63±0.03^{a}	0.44±0.07^{b}	0.40±0.01^{b}	0.63±0.03	0.53±0.08
20:3*n*-3	1.87±0.07	2.62±0.29	2.47±0.12	1.95±0.28	2.41±0.09	2.28±0.11	2.06±0.16	1.89±0.06	2.29±0.06	2.61±0.09^{a}	2.66±0.14^{a}	3.20±0.12^{b}	2.94±0.2	3.05±0.17
20:5*n*-3	10.79±0.24^{a}	7.82±0.62^{b}	6.69±0.58^{b}	8.51±0.64	9.92±0.28	9.79±0.75	7.47±0.08	7.39±0.64	6.61±0.40	7.21±0.07	6.49±0.40	6.20±0.58	4.71±0.36	4.04±0.21
22:5*n*-3	3.69±0.13	3.51±0.20	3.07±0.12	4.47±0.08	4.48±0.03	4.53±0.05	3.17±0.02	3.62±0.30	3.23±0.02	3.64±0.22	3.91±0.39	4.05±0.27	3.08±0.35	2.83±0.07
22:6*n*-3	18.01±0.56	18.38±0.68	17.95±0.08	18.13±0.25^{a}	19.82±0.45^{b}	20.94±0.27^{b}	11.82±0.31^{a}	16.56±0.76^{b}	19.35±0.83^{b}	14.13±0.45^{a}	18.45±1.06^{b}	18.74±0.83^{b}	18.13±0.79	20.83±0.80
Σ*n*-3PUFA	34.98±0.52^{a}	32.82±0.46^{ab}	30.87±0.99^{b}	34.02±0.42^{a}	37.19±0.23^{b}	38.08±0.73^{b}	25.43±0.31^{a}	29.97±0.27^{b}	31.95±0.35^{c}	28.23±0.30^{a}	31.95±1.16^{b}	32.60±0.60^{b}	29.49±0.80	31.29±0.72

[1] F, P, and M represents female, pseudomale, and male, respectively.

[2] Data within the same row and within a same fish batch not sharing a superscript letter were significantly (P<0.05) different.

[3] There was not enough pseudomale in WF3 for the fatty acid analysis.

[4] SFA, saturated fatty acids; MUFA, mono-unsaturated fatty acids; n-6PUFA, n-6 poly-unsaturated fatty acids; n-3 PUFA, n-3 poly-unsaturated fatty acid.