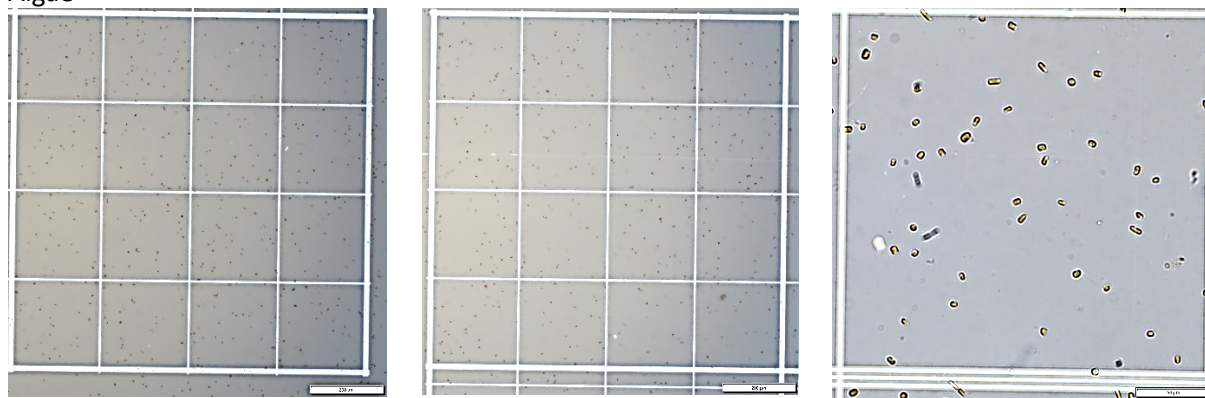


Figure S1. Mean (\pm SE) total organic matter content (TOM; as % ash-free dry weight) concentration at the tank inflow for experimental diets in this study. Data are based on 12 inflow samples per treatment (except for algae where $n=11$ due to a failed filter), and are corrected against system seawater blanks.

Algae



Faeces

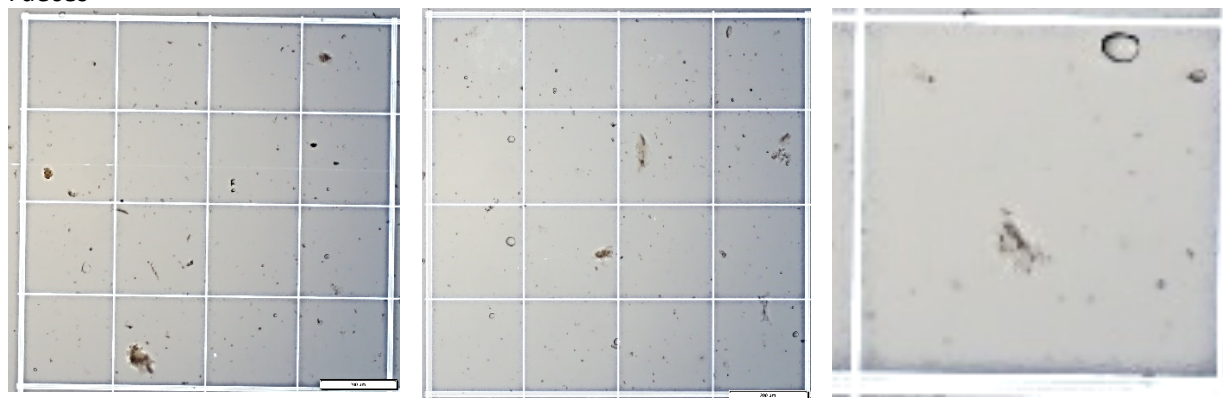


Figure S2. Haemocytology slides containing samples from algae slurry (top) and faeces slurry (bottom). Grid cells of the slide are 250 μ m. Note; blobs as shown on top-right of 3rd faeces slide and left of centre in 2nd faeces slide, with oil-like appearance, were commonly seen on slides from the faeces treatment.

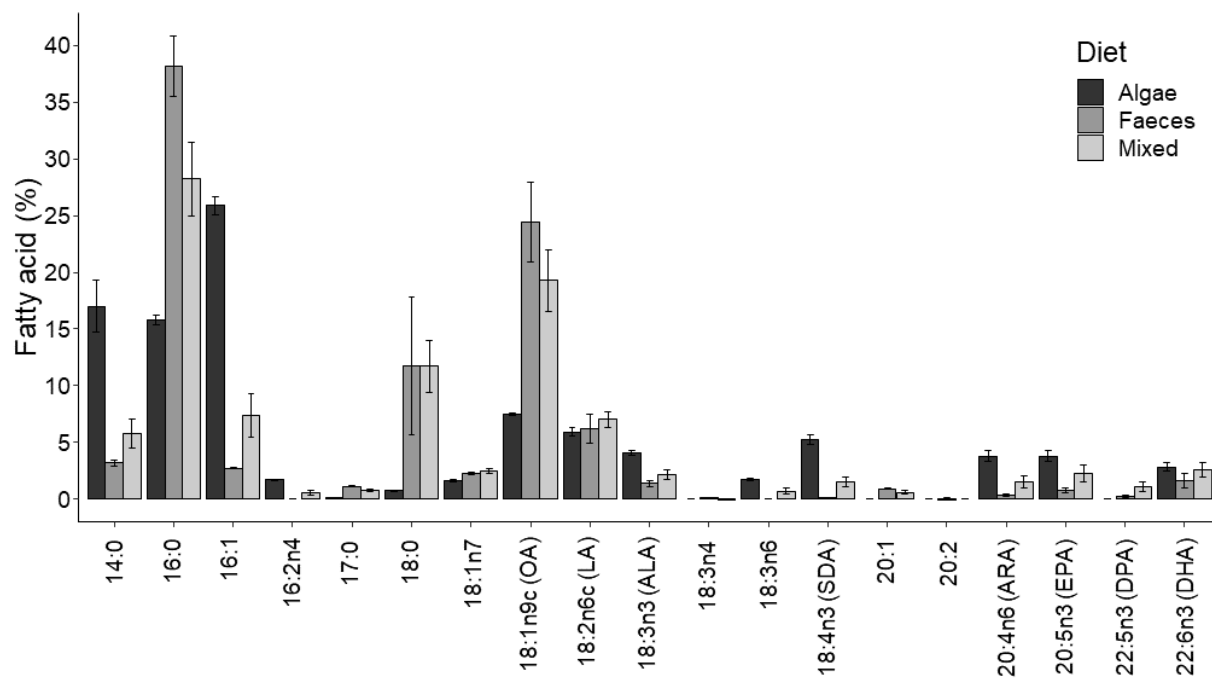


Figure S3. Mean (\pm SE) percent of individual fatty acids in each of the three diet slurries.

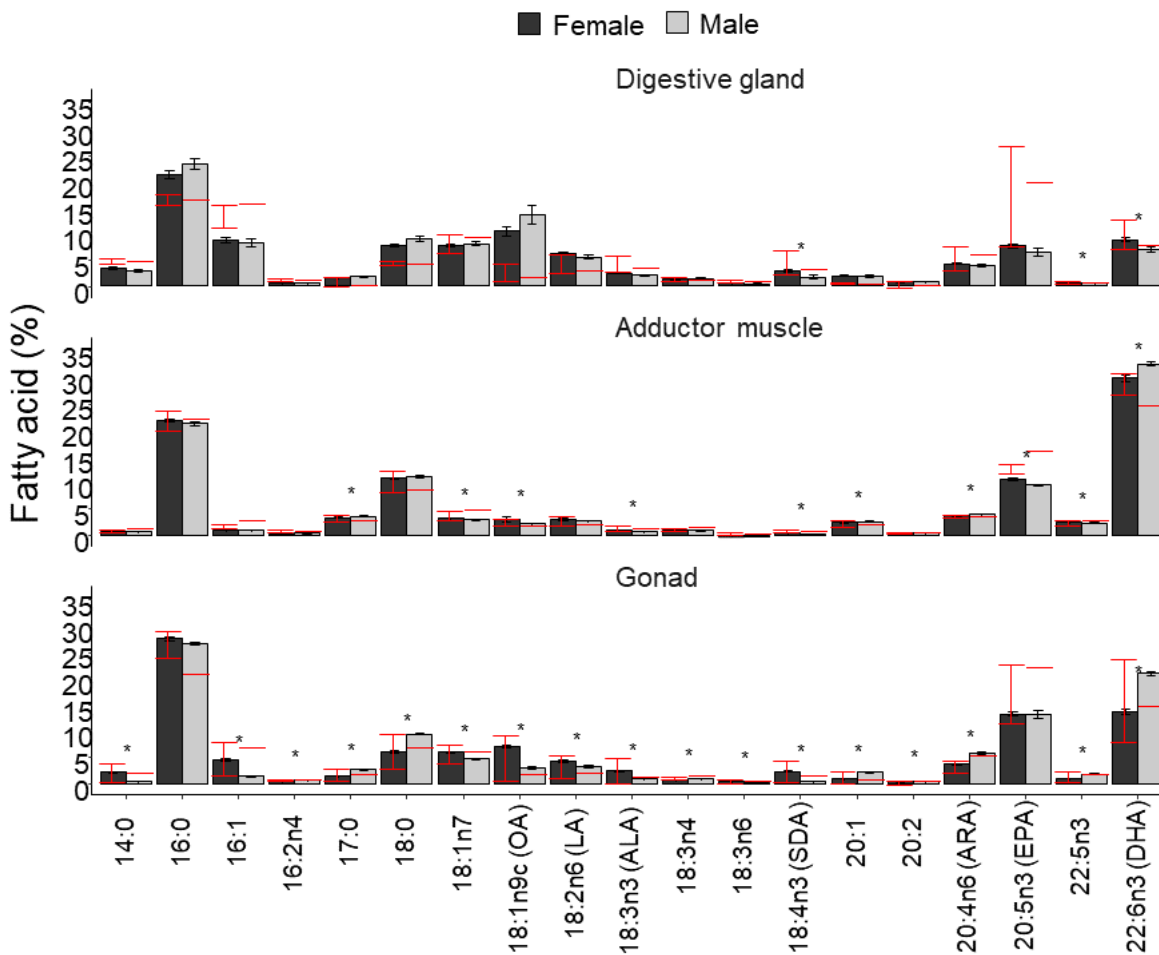


Figure S4. Percent composition of individual fatty acids >1% (mean \pm standard error) in digestive gland, adductor muscle, and gonad of *A. zelandica* males and females (combined across the diet treatments). Asterisk denotes significant differences (adjusted $p < 0.05$) between males and female pairs. Baseline value ranges are shown in red (female $n = 4$, male $n = 1$).

Table S1. Indices global test results for condition and organ indices, and pairwise comparisons for muscle yield index. Significant values (<0.05) are in bold type.

Test	df	F	P (F)
Condition index; CI (log)	3	0.5166	0.67
Gonadosomatic index; GSI	3	1.522	0.22
Muscle yield index; MYI (log)	3	5.0588	0.0034
<i>Algae vs. Baseline</i>	61		0.0029
<i>Algae vs. Faeces</i>	61		0.67
<i>Algae vs. Mixed</i>	61		1.00
<i>Baseline vs. Faeces</i>	61		0.024
<i>Baseline vs. Mixed</i>	61		0.0030
<i>Faeces vs. Mixed</i>	61		0.68
Mantle index; MI (log)	3	1.0967	0.36
Digestive gland index; DGI	3	0.0.2648	0.85

Table S2. Mean (\pm SE) fatty acids proportions (%) and concentrations (μ g/g) in digestive gland of *A. zelandica* in each treatment.

	Baseline	Algae	Mixed	Faeces
Fatty acid (%)				
14:0	4.63 (\pm 0.09)	4.60 (\pm 0.27)	3.02 (\pm 0.16)	1.81 (\pm 0.19)
16:0	16.35 (\pm 0.19)	20.47 (\pm 0.79)	20.94 (\pm 0.86)	24.39 (\pm 0.97)
16:1	13.65 (\pm 0.59)	11.85 (\pm 0.38)	7.92 (\pm 0.40)	5.90 (\pm 0.42)
16:2n4	1.01 (\pm 0.05)	0.73 (\pm 0.05)	0.57 (\pm 0.02)	0.51 (\pm 0.03)
17:0	0.62 (\pm 0.20)	1.46 (\pm 0.09)	1.50 (\pm 0.08)	1.98 (\pm 0.15)
18:0	4.20 (\pm 0.09)	6.55 (\pm 0.34)	7.51 (\pm 0.34)	10.28 (\pm 0.46)
18:1n7	8.21 (\pm 0.37)	9.41 (\pm 0.32)	7.12 (\pm 0.29)	6.93 (\pm 0.44)
18:1n9c	2.27 (\pm 0.36)	5.05 (\pm 0.21)	12.44 (\pm 0.53)	16.78 (\pm 1.36)
18:2n6c	3.84 (\pm 0.39)	4.81 (\pm 0.19)	7.81 (\pm 0.34)	4.97 (\pm 0.37)
18:3n3	3.89 (\pm 0.31)	2.62 (\pm 0.21)	2.65 (\pm 0.24)	1.52 (\pm 0.20)
18:3n4	1.08 (\pm 0.08)	1.40 (\pm 0.09)	1.13 (\pm 0.11)	1.25 (\pm 0.18)
18:3n6	0.78 (\pm 0.06)	0.78 (\pm 0.04)	0.59 (\pm 0.03)	0.24 (\pm 0.04)
18:4n3	4.18 (\pm 0.48)	3.91 (\pm 0.34)	2.30 (\pm 0.23)	0.93 (\pm 0.16)
20:1	0.44 (\pm 0.04)	1.56 (\pm 0.09)	1.65 (\pm 0.18)	2.31 (\pm 0.22)
20:2	0.11 (\pm 0.11)	0.65 (\pm 0.10)	0.90 (\pm 0.08)	0.78 (\pm 0.07)
20:4n6	5.29 (\pm 0.42)	4.84 (\pm 0.25)	3.73 (\pm 0.19)	3.53 (\pm 0.27)
20:5n3	17.45 (\pm 1.72)	8.21 (\pm 0.79)	6.95 (\pm 0.65)	6.15 (\pm 0.51)
22:5n3	0.60 (\pm 0.03)	0.44 (\pm 0.03)	0.53 (\pm 0.03)	0.65 (\pm 0.03)
22:6n3	9.30 (\pm 0.61)	8.50 (\pm 0.49)	8.55 (\pm 0.64)	7.18 (\pm 0.53)
Σ SFA	26.56 (\pm 0.40)	33.88 (\pm 1.28)	33.81 (\pm 1.36)	39.06 (\pm 1.61)
Σ n-3	36.24 (\pm 1.19)	24.31 (\pm 1.31)	21.52 (\pm 1.46)	16.84 (\pm 1.17)
Σ n-6	10.40 (\pm 0.75)	10.98 (\pm 0.41)	12.53 (\pm 0.54)	9.10 (\pm 0.63)
n3/n6	3.61 (\pm 0.43)	2.23 (\pm 0.10)	1.72 (\pm 0.10)	1.90 (\pm 0.11)
Σ MUFA	24.60 (\pm 0.58)	28.04 (\pm 0.59)	29.54 (\pm 0.78)	32.43 (\pm 0.87)
Σ PUFA	48.84 (\pm 0.73)	38.07 (\pm 1.61)	36.65 (\pm 1.80)	28.48 (\pm 1.60)
Σ SC PUFA	14.77 (\pm 1.16)	14.26 (\pm 0.68)	15.05 (\pm 0.72)	9.41 (\pm 0.59)
Σ LC PUFA	34.06 (\pm 0.86)	23.81 (\pm 1.34)	21.60 (\pm 1.28)	19.06 (\pm 1.17)
Fatty acid concentrations (μg/g)				
14:0	6,024.41 (\pm 211.26)	2,396.85 (\pm 249.04)	1,180.32 (\pm 96.71)	674.05 (\pm 106.77)
16:0	21,277.34 (\pm 628.30)	10,300.16 (\pm 605.16)	7,984.81 (\pm 441.20)	8,593.81 (\pm 610.65)
16:1	17,823.30 (\pm 1,193.75)	6,242.20 (\pm 596.95)	3,121.99 (\pm 256.33)	2,218.19 (\pm 304.98)
16:2n4	1,309.23 (\pm 77.01)	391.16 (\pm 42.69)	233.53 (\pm 23.98)	180.46 (\pm 14.83)
17:0	789.51 (\pm 245.15)	716.43 (\pm 32.76)	563.80 (\pm 27.92)	665.02 (\pm 34.52)
18:0	5,457.41 (\pm 97.69)	3,237.63 (\pm 139.79)	2,849.65 (\pm 148.97)	3,570.14 (\pm 213.04)
18:1n7	10,732.79 (\pm 746.30)	4,821.93 (\pm 375.08)	2,739.66 (\pm 172.28)	2,481.63 (\pm 234.79)
18:1n9c	2,930.66 (\pm 450.38)	2,642.70 (\pm 267.01)	4,979.05 (\pm 493.52)	6,354.82 (\pm 828.73)

	Baseline		Algae		Mixed		Faeces	
Fatty acid (%)								
18:2n6c	4,970.13	(±465.40)	2,568.66	(±275.41)	3,204.89	(±375.53)	1,925.60	(±283.33)
18:3n3	5,051.86	(±399.18)	1,419.52	(±190.51)	1,123.67	(±183.18)	627.64	(±128.64)
18:3n4	1,404.56	(±95.93)	725.78	(±81.99)	443.16	(±59.22)	431.34	(±58.85)
18:3n6	1,009.86	(±82.51)	420.84	(±48.28)	246.23	(±32.60)	100.31	(±25.17)
18:4n3	5,423.73	(±605.00)	2,148.82	(±289.42)	1,019.93	(±181.25)	398.74	(±104.85)
20:1	571.13	(±33.28)	784.24	(±62.37)	653.41	(±86.47)	775.89	(±67.61)
20:2	131.52	(±131.52)	334.44	(±60.28)	350.02	(±44.34)	287.36	(±37.14)
20:4n6	6,901.57	(±611.91)	2,559.42	(±269.37)	1,533.19	(±190.71)	1,329.74	(±194.84)
20:5n3	22,789.15	(±2,480.09)	4,460.41	(±733.66)	2,936.16	(±446.69)	2,405.90	(±407.03)
22:5n3	777.88	(±50.33)	224.79	(±22.79)	217.74	(±26.78)	231.25	(±21.80)
22:6n3	12,051.69	(±630.27)	4,473.40	(±493.19)	3,615.56	(±570.57)	2,689.78	(±392.42)
Total FA content (mg/g)	130.17	(±3.86)	51.97	(±4.21)	39.84	(±3.45)	36.64	(±3.52)
∑SFA	34,539.62	(±844.69)	17,036.15	(±989.29)	12,871.50	(±681.36)	13,712.70	(±942.23)
∑n-3	47,172.82	(±1,984.01)	13,066.18	(±1,583.32)	9,142.68	(±1,346.23)	6,519.28	(±1,032.03)
∑n-6	13,526.01	(±981.49)	5,843.30	(±599.36)	5,149.18	(±609.11)	3,490.78	(±512.63)
n3/n6	3.61	(±0.43)	2.23	(±0.10)	1.72	(±0.10)	1.90	(±0.11)
∑MUFA	32,089.68	(±1,619.20)	14,575.12	(±1,224.97)	11,650.08	(±920.99)	11,999.18	(±1,215.94)
∑PUFA	63,544.14	(±1,840.28)	20,360.87	(±2,269.38)	15,318.58	(±2,000.13)	10,909.21	(±1,581.41)
	130.17	(±3.86)	51.97	(±4.21)	39.84	(±3.45)	36.64	(±3.52)

Table S3. Mean (\pm SE) fatty acids proportions (%) and concentrations ($\mu\text{g/g}$) in gonads of *A. zelandica* in each treatment.

	Baseline		Algae		Mixed		Faeces	
Fatty acid (%)								
14:0	1.97	(± 0.31)	1.60	(± 0.24)	1.77	(± 0.17)	1.11	(± 0.24)
16:0	25.33	(± 1.18)	27.48	(± 0.39)	27.34	(± 0.56)	26.97	(± 0.28)
16:1	4.99	(± 0.72)	3.81	(± 0.55)	3.57	(± 0.40)	2.72	(± 0.51)
16:2n4	0.56	(± 0.07)	0.53	(± 0.03)	0.39	(± 0.03)	0.60	(± 0.05)
17:0	1.61	(± 0.20)	1.84	(± 0.14)	1.67	(± 0.15)	2.25	(± 0.17)
18:0	6.17	(± 0.62)	6.98	(± 0.38)	6.56	(± 0.59)	8.53	(± 0.44)
18:1n7	5.70	(± 0.31)	5.92	(± 0.27)	5.49	(± 0.19)	4.95	(± 0.25)
18:1n9c	4.07	(± 1.00)	4.64	(± 0.57)	7.07	(± 0.50)	4.85	(± 0.48)
18:2n6c	2.92	(± 0.42)	3.30	(± 0.14)	4.62	(± 0.34)	3.42	(± 0.26)
18:3n3	2.10	(± 0.47)	1.82	(± 0.20)	2.36	(± 0.23)	1.33	(± 0.19)
18:3n4	1.00	(± 0.10)	0.80	(± 0.06)	0.82	(± 0.05)	0.80	(± 0.07)
18:3n6	0.34	(± 0.05)	0.36	(± 0.05)	0.38	(± 0.04)	0.25	(± 0.04)
18:4n3	2.07	(± 0.41)	1.80	(± 0.32)	1.93	(± 0.21)	1.03	(± 0.23)
20:1	0.98	(± 0.22)	1.36	(± 0.17)	1.23	(± 0.14)	1.72	(± 0.19)
20:2	0.20	(± 0.13)	0.38	(± 0.05)	0.37	(± 0.06)	0.50	(± 0.02)
20:4n6	3.65	(± 0.47)	4.52	(± 0.41)	4.02	(± 0.33)	4.93	(± 0.38)
20:5n3	17.94	(± 1.36)	13.57	(± 0.58)	12.77	(± 0.60)	13.40	(± 0.74)
22:5n3	1.27	(± 0.23)	1.21	(± 0.13)	1.02	(± 0.09)	1.49	(± 0.15)
22:6n3	15.50	(± 1.50)	16.69	(± 1.17)	14.99	(± 0.83)	17.87	(± 1.13)
Σ SFA	35.77	(± 0.88)	38.52	(± 0.44)	37.99	(± 0.50)	39.40	(± 0.51)
Σ n-3	39.42	(± 1.77)	35.43	(± 1.01)	33.52	(± 0.85)	35.41	(± 1.09)
Σ n-6	7.12	(± 0.44)	8.36	(± 0.49)	9.22	(± 0.60)	8.78	(± 0.50)
n3/n6	5.65	(± 0.53)	4.48	(± 0.35)	3.92	(± 0.30)	4.28	(± 0.36)
Σ MUFA	15.93	(± 1.51)	15.97	(± 1.11)	17.67	(± 0.85)	14.50	(± 1.11)
Σ PUFA	48.30	(± 1.86)	45.50	(± 1.07)	44.32	(± 0.61)	46.09	(± 1.04)
Σ SC PUFA	8.98	(± 1.23)	8.61	(± 0.59)	10.51	(± 0.72)	7.43	(± 0.57)
Σ LC PUFA	39.31	(± 3.06)	36.89	(± 1.61)	33.81	(± 1.13)	38.66	(± 1.41)
Fatty acid concentrations ($\mu\text{g/g}$)								
14:0	1,199.70	(± 290.97)	836.48	(± 153.52)	900.10	(± 112.00)	499.50	(± 139.28)
16:0	14,626.04	($\pm 2,589.64$)	12,581.72	($\pm 1,087.63$)	12,937.35	($\pm 1,076.28$)	9,366.19	($\pm 1,005.11$)
16:1	2,914.00	(± 579.18)	1,964.74	(± 355.33)	1,788.38	(± 255.01)	1,172.75	(± 303.66)
16:2n4	296.66	(± 25.06)	232.07	(± 16.50)	174.27	(± 13.65)	191.71	(± 14.05)
17:0	853.99	(± 57.31)	780.98	(± 36.31)	715.03	(± 32.33)	697.78	(± 23.52)
18:0	3,308.45	(± 273.02)	3,031.53	(± 166.66)	2,853.94	(± 240.45)	2,748.35	(± 146.38)
18:1n7	3,282.76	(± 561.80)	2,786.71	(± 314.09)	2,612.77	(± 224.59)	1,810.97	(± 266.75)
18:1n9c	2,630.67	(± 847.87)	2,356.11	(± 378.86)	3,517.97	(± 387.27)	1,885.82	(± 355.02)
18:2n6c	1,787.99	(± 459.99)	1,523.56	(± 159.78)	2,209.25	(± 251.18)	1,246.83	(± 203.20)
18:3n3	1,344.52	(± 414.07)	907.70	(± 145.51)	1,208.33	(± 171.06)	540.87	(± 135.43)
18:3n4	544.73	(± 63.28)	350.16	(± 31.24)	393.94	(± 43.49)	264.48	(± 28.29)
18:3n6	203.13	(± 48.75)	181.44	(± 34.60)	192.96	(± 28.50)	106.52	(± 26.67)
18:4n3	1,303.42	(± 369.22)	963.37	(± 195.23)	1,012.55	(± 138.69)	477.57	(± 144.05)
20:1	512.86	(± 68.26)	539.73	(± 27.31)	507.09	(± 13.72)	523.34	(± 34.68)
20:2	75.21	(± 47.67)	159.93	(± 22.20)	159.63	(± 28.44)	168.46	(± 16.31)
20:4n6	1,950.01	(± 201.58)	1,923.30	(± 146.54)	1,781.72	(± 150.19)	1,573.91	(± 108.12)
20:5n3	9,737.32	(± 883.16)	6,254.41	(± 607.61)	6,049.89	(± 556.70)	4,695.45	(± 564.83)
22:5n3	646.00	(± 15.39)	499.92	(± 35.32)	440.06	(± 22.34)	456.92	(± 27.37)
22:6n3	8,382.55	(± 784.78)	7,161.39	(± 435.14)	6,726.67	(± 422.62)	5,769.74	(± 422.38)
Total FA content (mg/g)	56.58	(± 8.26)	45.75	(± 3.85)	46.98	(± 3.61)	34.71	(± 3.72)
Σ SFA	20,398.08	($\pm 3,240.77$)	17,534.62	($\pm 1,431.73$)	17,717.09	($\pm 1,303.43$)	13,516.07	($\pm 1,324.17$)
Σ n-3	21,735.14	($\pm 2,391.10$)	15,970.73	($\pm 1,247.63$)	15,673.19	($\pm 1,225.66$)	12,070.46	($\pm 1,191.64$)
Σ n-6	4,060.71	(± 680.72)	3,718.63	(± 328.29)	4,278.39	(± 432.76)	2,992.99	(± 331.38)
n3/n6	5.65	(± 0.53)	4.48	(± 0.35)	3.92	(± 0.30)	4.28	(± 0.36)
Σ MUFA	9,467.64	($\pm 1,997.02$)	7,778.48	($\pm 1,012.92$)	8,567.75	(± 819.24)	5,506.81	(± 947.47)
Σ PUFA	26,712.45	($\pm 3,048.63$)	20,431.53	($\pm 1,495.99$)	20,679.41	($\pm 1,554.32$)	15,688.10	($\pm 1,516.34$)
	56.58	(± 8.26)	45.75	(± 3.85)	46.98	(± 3.61)	34.71	(± 3.72)

Table S4. Mean (\pm SE) fatty acids proportions (%) and concentrations (μ g/g) in adductor muscle of *A. zelandica* in each treatment.

	Baseline	Algae	Mixed	Faeces
Fatty acid (%)				
14:0	0.76 (\pm 0.10)	0.67 (\pm 0.05)	0.70 (\pm 0.06)	0.68 (\pm 0.08)
16:0	21.78 (\pm 0.34)	21.32 (\pm 0.48)	21.70 (\pm 0.24)	21.74 (\pm 0.27)
16:1	1.79 (\pm 0.26)	1.05 (\pm 0.06)	0.93 (\pm 0.04)	0.85 (\pm 0.06)
16:2n4	0.69 (\pm 0.05)	0.31 (\pm 0.10)	0.28 (\pm 0.09)	0.31 (\pm 0.09)
17:0	3.10 (\pm 0.15)	3.44 (\pm 0.06)	3.40 (\pm 0.08)	3.48 (\pm 0.10)
18:0	9.82 (\pm 0.46)	10.70 (\pm 0.14)	10.95 (\pm 0.22)	11.23 (\pm 0.20)
18:1n7	3.89 (\pm 0.30)	3.26 (\pm 0.06)	3.13 (\pm 0.16)	2.97 (\pm 0.13)
18:1n9c	2.23 (\pm 0.19)	2.38 (\pm 0.12)	2.43 (\pm 0.05)	3.28 (\pm 0.93)
18:2n6c	2.49 (\pm 0.21)	2.91 (\pm 0.10)	2.97 (\pm 0.06)	2.87 (\pm 0.32)
18:3n3	1.17 (\pm 0.08)	0.93 (\pm 0.07)	0.87 (\pm 0.04)	0.74 (\pm 0.05)
18:3n4	1.09 (\pm 0.10)	0.94 (\pm 0.06)	0.89 (\pm 0.05)	0.80 (\pm 0.05)
18:3n6	0.19 (\pm 0.06)	0.02 (\pm 0.01)	0.00 (\pm 0.00)	0.03 (\pm 0.02)
18:4n3	0.66 (\pm 0.05)	0.45 (\pm 0.04)	0.39 (\pm 0.03)	0.27 (\pm 0.03)
20:1	2.14 (\pm 0.11)	2.51 (\pm 0.07)	2.40 (\pm 0.05)	2.44 (\pm 0.08)
20:2	0.33 (\pm 0.03)	0.37 (\pm 0.02)	0.41 (\pm 0.01)	0.37 (\pm 0.03)
20:4n6	3.50 (\pm 0.08)	3.89 (\pm 0.13)	3.82 (\pm 0.09)	3.73 (\pm 0.14)
20:5n3	13.18 (\pm 0.69)	9.93 (\pm 0.24)	10.55 (\pm 0.32)	9.91 (\pm 0.37)
22:5n3	2.31 (\pm 0.11)	2.40 (\pm 0.04)	2.34 (\pm 0.05)	2.46 (\pm 0.07)
22:6n3	27.87 (\pm 0.92)	31.44 (\pm 0.59)	30.64 (\pm 0.48)	30.70 (\pm 1.14)
Σ SFA	36.06 (\pm 0.30)	36.78 (\pm 0.52)	37.53 (\pm 0.30)	37.88 (\pm 0.30)
Σ n-3	45.29 (\pm 0.37)	45.17 (\pm 0.45)	44.81 (\pm 0.37)	44.11 (\pm 1.28)
Σ n-6	6.30 (\pm 0.24)	7.04 (\pm 0.22)	6.95 (\pm 0.15)	6.76 (\pm 0.24)
n3/n6	7.24 (\pm 0.28)	6.48 (\pm 0.17)	6.50 (\pm 0.19)	6.70 (\pm 0.31)
Σ MUFA	10.21 (\pm 0.47)	9.39 (\pm 0.12)	9.12 (\pm 0.20)	9.77 (\pm 1.00)
Σ PUFA	53.73 (\pm 0.45)	53.83 (\pm 0.53)	53.36 (\pm 0.28)	52.35 (\pm 1.08)
Σ SC PUFA	6.31 (\pm 0.20)	5.56 (\pm 0.21)	5.42 (\pm 0.15)	5.02 (\pm 0.39)
Σ LC PUFA	47.42 (\pm 0.47)	48.28 (\pm 0.61)	47.93 (\pm 0.35)	47.33 (\pm 1.44)
Fatty acid concentrations (μg/g)				
14:0	53.60 (\pm 8.16)	47.90 (\pm 5.17)	50.87 (\pm 6.81)	50.86 (\pm 10.09)
16:0	1,514.80 (\pm 104.12)	1,493.37 (\pm 89.33)	1,530.09 (\pm 69.31)	1,538.31 (\pm 86.50)
16:1	125.61 (\pm 21.65)	74.18 (\pm 6.27)	65.42 (\pm 3.43)	61.67 (\pm 8.30)
16:2n4	46.93 (\pm 2.15)	24.53 (\pm 8.48)	23.12 (\pm 7.51)	25.16 (\pm 7.35)
17:0	213.06 (\pm 6.63)	239.37 (\pm 11.66)	240.42 (\pm 12.26)	242.26 (\pm 9.59)
18:0	674.93 (\pm 27.09)	744.04 (\pm 35.13)	772.49 (\pm 36.31)	790.00 (\pm 39.18)
18:1n7	270.69 (\pm 28.14)	226.36 (\pm 10.86)	218.75 (\pm 12.45)	209.44 (\pm 13.82)
18:1n9c	154.40 (\pm 15.92)	164.52 (\pm 9.96)	171.27 (\pm 8.29)	263.61 (\pm 103.06)
18:2n6c	173.96 (\pm 21.72)	201.98 (\pm 10.73)	209.35 (\pm 10.08)	211.95 (\pm 38.45)
18:3n3	82.11 (\pm 9.40)	66.59 (\pm 7.30)	61.97 (\pm 4.29)	54.38 (\pm 6.40)
18:3n4	76.29 (\pm 9.38)	65.64 (\pm 5.32)	61.40 (\pm 3.13)	55.58 (\pm 3.74)
18:3n6	12.74 (\pm 3.58)	1.26 (\pm 0.87)	0.00 (\pm 0.00)	2.62 (\pm 1.82)
18:4n3	46.02 (\pm 4.96)	31.45 (\pm 3.35)	27.38 (\pm 2.20)	19.13 (\pm 1.99)
20:1	149.90 (\pm 14.75)	175.18 (\pm 10.08)	168.82 (\pm 7.10)	170.41 (\pm 7.12)
20:2	23.59 (\pm 3.50)	26.20 (\pm 1.93)	28.32 (\pm 1.13)	25.82 (\pm 2.05)
20:4n6	242.07 (\pm 14.13)	270.93 (\pm 16.52)	270.48 (\pm 14.96)	261.49 (\pm 15.11)
20:5n3	916.05 (\pm 77.88)	692.68 (\pm 37.46)	737.58 (\pm 28.26)	691.24 (\pm 34.98)
22:5n3	160.35 (\pm 12.77)	165.94 (\pm 6.78)	164.63 (\pm 7.74)	174.90 (\pm 12.73)
22:6n3	1,926.35 (\pm 109.34)	2,174.57 (\pm 87.02)	2,159.11 (\pm 97.45)	2,135.44 (\pm 106.55)
Total FA content (mg/g)	6.93 (\pm 0.39)	6.96 (\pm 0.33)	7.05 (\pm 0.30)	7.07 (\pm 0.37)
Σ SFA	2,497.13 (\pm 134.21)	2,570.32 (\pm 140.28)	2,648.83 (\pm 121.73)	2,674.65 (\pm 140.11)
Σ n-3	3,138.39 (\pm 176.86)	3,133.27 (\pm 131.78)	3,152.38 (\pm 127.87)	3,076.42 (\pm 139.18)
Σ n-6	436.72 (\pm 32.34)	488.00 (\pm 24.36)	491.80 (\pm 25.89)	484.96 (\pm 42.19)
n3/n6	7.24 (\pm 0.28)	6.48 (\pm 0.17)	6.50 (\pm 0.19)	6.70 (\pm 0.31)
Σ MUFA	711.16 (\pm 59.61)	653.80 (\pm 32.29)	639.96 (\pm 27.00)	723.03 (\pm 126.69)
Σ PUFA	3,723.52 (\pm 212.46)	3,737.64 (\pm 164.56)	3,758.83 (\pm 159.34)	3,667.94 (\pm 164.51)

Table S5. Mean (\pm SE) proportions and concentrations ($\mu\text{g/g}$) of individual fatty acids in tissues from males and female muscle and gonad tissues, across diet treatments (data excludes baseline).

Fatty acid (%)	Adductor muscle		Gonad			
	Female	Male	Female	Male	Female	Male
14:0	0.71 (\pm 0.05)	0.66 (\pm 0.04)	2.11 (\pm 0.07)	0.55 (\pm 0.09)		
16:0	21.79 (\pm 0.20)	21.30 (\pm 0.32)	27.43 (\pm 0.33)	26.43 (\pm 0.40)		
16:1	1.06 (\pm 0.05)	0.97 (\pm 0.11)	4.58 (\pm 0.24)	1.66 (\pm 0.30)		
16:2n4	0.33 (\pm 0.06)	0.36 (\pm 0.09)	0.42 (\pm 0.02)	0.66 (\pm 0.04)		
17:0	3.32 (\pm 0.06)	3.56 (\pm 0.07)	1.48 (\pm 0.04)	2.61 (\pm 0.09)		
18:0	10.77 (\pm 0.13)	11.00 (\pm 0.24)	6.08 (\pm 0.25)	9.29 (\pm 0.23)		
18:1n7	3.31 (\pm 0.09)	2.98 (\pm 0.14)	5.89 (\pm 0.15)	4.73 (\pm 0.14)		
18:1n9c	2.97 (\pm 0.46)	2.14 (\pm 0.06)	6.77 (\pm 0.27)	3.03 (\pm 0.26)		
18:2n6c	2.97 (\pm 0.16)	2.71 (\pm 0.10)	4.03 (\pm 0.22)	3.16 (\pm 0.18)		
18:3n3	0.95 (\pm 0.04)	0.75 (\pm 0.04)	2.37 (\pm 0.13)	0.99 (\pm 0.05)		
18:3n4	0.91 (\pm 0.04)	0.87 (\pm 0.05)	0.77 (\pm 0.04)	0.92 (\pm 0.06)		
18:3n6	0.04 (\pm 0.02)	0.03 (\pm 0.02)	0.42 (\pm 0.03)	0.17 (\pm 0.02)		
18:4n3	0.44 (\pm 0.03)	0.30 (\pm 0.04)	2.31 (\pm 0.10)	0.44 (\pm 0.06)		
20:1	2.34 (\pm 0.05)	2.56 (\pm 0.05)	0.98 (\pm 0.04)	2.11 (\pm 0.14)		
20:2	0.39 (\pm 0.01)	0.36 (\pm 0.02)	0.33 (\pm 0.04)	0.51 (\pm 0.02)		
20:4n6	3.65 (\pm 0.08)	4.00 (\pm 0.09)	3.61 (\pm 0.16)	5.79 (\pm 0.26)		
20:5n3	10.76 (\pm 0.26)	9.86 (\pm 0.38)	13.74 (\pm 0.44)	13.63 (\pm 0.83)		
22:5n3	2.41 (\pm 0.04)	2.36 (\pm 0.05)	0.91 (\pm 0.04)	1.82 (\pm 0.07)		
22:6n3	29.77 (\pm 0.58)	32.09 (\pm 0.57)	13.95 (\pm 0.45)	20.69 (\pm 0.49)		
Σ SFA	37.31 (\pm 0.25)	37.24 (\pm 0.40)	37.82 (\pm 0.32)	39.27 (\pm 0.55)		
Σ n-3	44.36 (\pm 0.65)	45.40 (\pm 0.34)	33.81 (\pm 0.69)	37.71 (\pm 0.71)		
Σ n-6	6.79 (\pm 0.14)	6.95 (\pm 0.19)	8.27 (\pm 0.37)	9.29 (\pm 0.43)		
n3/n6	6.64 (\pm 0.17)	6.62 (\pm 0.18)	4.40 (\pm 0.24)	4.29 (\pm 0.31)		
Σ MUFA	9.90 (\pm 0.49)	8.83 (\pm 0.19)	18.56 (\pm 0.42)	11.64 (\pm 0.39)		
Σ PUFA	52.79 (\pm 0.56)	53.93 (\pm 0.37)	43.60 (\pm 0.50)	49.09 (\pm 0.48)		
Σ SC PUFA	5.64 (\pm 0.21)	5.02 (\pm 0.17)	10.34 (\pm 0.41)	6.34 (\pm 0.18)		
Σ LC PUFA	47.15 (\pm 0.72)	48.91 (\pm 0.39)	33.26 (\pm 0.70)	42.75 (\pm 0.54)		
Fatty acid ($\mu\text{g/g}$)						
14:0	53.06 (\pm 5.98)	45.40 (\pm 3.77)	1,151.71 (\pm 59.21)	152.70 (\pm 37.12)		
16:0	1,567.44 (\pm 57.17)	1,438.19 (\pm 58.75)	14,815.47 (\pm 491.11)	6,814.97 (\pm 256.11)		
16:1	76.43 (\pm 5.24)	66.04 (\pm 8.83)	2,492.56 (\pm 158.46)	473.33 (\pm 130.47)		
16:2n4	26.96 (\pm 5.38)	25.82 (\pm 6.17)	227.57 (\pm 10.79)	173.00 (\pm 14.91)		
17:0	237.21 (\pm 7.73)	239.35 (\pm 8.75)	784.89 (\pm 21.80)	666.35 (\pm 23.17)		
18:0	772.52 (\pm 26.38)	738.78 (\pm 27.87)	3,217.68 (\pm 127.55)	2,383.67 (\pm 85.00)		
18:1n7	235.50 (\pm 8.34)	201.04 (\pm 12.50)	3,182.58 (\pm 130.55)	1,253.02 (\pm 99.85)		
18:1n9c	227.63 (\pm 51.19)	143.22 (\pm 5.66)	3,657.80 (\pm 165.37)	759.12 (\pm 57.17)		
18:2n6c	217.08 (\pm 19.39)	182.37 (\pm 9.13)	2,181.82 (\pm 134.67)	805.67 (\pm 43.51)		
18:3n3	69.43 (\pm 4.56)	51.16 (\pm 3.54)	1,320.11 (\pm 97.44)	257.41 (\pm 18.19)		
18:3n4	64.20 (\pm 2.77)	58.69 (\pm 4.51)	419.74 (\pm 25.74)	248.02 (\pm 26.19)		
18:3n6	2.66 (\pm 1.18)	2.12 (\pm 1.22)	231.72 (\pm 16.46)	45.89 (\pm 7.69)		
18:4n3	31.69 (\pm 2.05)	20.73 (\pm 2.57)	1,285.76 (\pm 81.40)	123.58 (\pm 25.65)		
20:1	167.59 (\pm 5.97)	172.11 (\pm 6.37)	514.45 (\pm 10.88)	534.54 (\pm 36.74)		
20:2	27.89 (\pm 1.06)	23.91 (\pm 1.81)	165.40 (\pm 19.78)	133.52 (\pm 8.14)		
20:4n6	262.81 (\pm 11.31)	268.58 (\pm 10.22)	1,936.12 (\pm 97.38)	1,490.93 (\pm 80.20)		
20:5n3	762.96 (\pm 22.86)	665.93 (\pm 37.42)	7,417.58 (\pm 329.63)	3,673.10 (\pm 407.94)		
22:5n3	173.24 (\pm 7.37)	158.28 (\pm 5.07)	485.18 (\pm 18.87)	477.66 (\pm 32.92)		
22:6n3	2,122.03 (\pm 71.93)	2,151.37 (\pm 68.66)	7,506.48 (\pm 293.78)	5,340.98 (\pm 239.58)		
Σ SFA	2,682.12 (\pm 94.91)	2,509.40 (\pm 93.17)	20,356.99 (\pm 600.14)	10,125.87 (\pm 373.34)		
Σ n-3	3,161.47 (\pm 95.83)	3,049.95 (\pm 93.32)	18,301.69 (\pm 700.92)	9,913.33 (\pm 652.92)		
Σ n-6	492.00 (\pm 24.39)	467.11 (\pm 19.14)	4,460.53 (\pm 237.80)	2,387.59 (\pm 125.09)		
n3/n6	6.64 (\pm 0.17)	6.62 (\pm 0.18)	4.40 (\pm 0.24)	4.29 (\pm 0.31)		
Σ MUFA	724.28 (\pm 63.19)	594.43 (\pm 24.17)	10,033.80 (\pm 372.12)	3,046.74 (\pm 218.34)		
Σ PUFA	3,773.61 (\pm 116.41)	3,625.48 (\pm 114.80)	23,574.93 (\pm 818.72)	12,855.45 (\pm 761.25)		
Total FA content (mg/g)	7.18 (\pm 0.24)	6.73 (\pm 0.22)	53.97 (\pm 1.69)	26.03 (\pm 1.30)		

Table S6. Global p-values for generalised linear models testing for difference between Treatments, Sex, and the associated interaction term for individual fatty acids and fatty acid groups each in each of the three tissue types. Significant values (<0.05) are in bold type.

df	Digestive gland P _{ChiSq}		Adductor muscle P _{ChiSq}			Gonad P _{ChiSq}		
	Diet 2		Diet 2	Sex 1	Diet x Sex 2	Diet 2	Sex 1	Diet x Sex 2
14:0	0.000		0.953	0.400	0.459	0.000	0.000	0.181
16:0	0.003		0.603	0.120	0.096	0.702	0.152	0.919
16:1	0.000		0.025	0.126	0.504	0.003	0.000	0.460
16:2n4	0.000		0.972	0.628	0.628	0.000	0.000	0.835
17:0	0.002		0.734	0.004	0.159	0.000	0.000	0.279
18:0	0.000		0.147	0.360	0.387	0.000	0.000	0.381
18:1n7	0.000		0.240	0.013	0.866	0.001	0.000	0.579
18:1n9c	0.000		0.254	0.021	0.234	0.000	0.000	0.021
18:2n6c	0.000		0.938	0.260	0.090	0.000	0.028	0.581
18:3n3	0.000		0.016	0.003	0.768	0.000	0.000	0.832
18:3n4	0.342		0.150	0.566	0.588	0.957	0.019	0.255
18:3n6	0.000		0.086	0.963	0.914	0.006	0.000	0.831
18:4n3	0.000		0.000	0.001	0.968	0.000	0.000	0.891
20:1	0.003		0.482	0.003	0.173	0.000	0.000	0.396
20:2	0.128		0.480	0.140	0.926	0.114	0.037	0.408
20:4n6	0.000		0.638	0.004	0.736	0.059	0.000	0.948
20:5n3	0.063		0.242	0.014	0.767	0.662	0.661	0.917
22:5n3	0.000		0.260	0.046	0.392	0.000	0.000	0.910
22:6n3	0.104		0.728	0.003	0.599	0.001	0.000	0.999
ΣSFA	0.000		0.087	0.616	0.021	0.091	0.014	0.559
Σn-3	0.000		0.670	0.151	0.648	0.183	0.000	0.807
Σn-6	0.000		0.571	0.304	0.026	0.524	0.092	0.741
n3/n6	0.000		0.778	0.778	0.159	0.491	0.877	0.581
ΣMUFA	0.000		0.701	0.029	0.300	0.000	0.000	0.675
ΣPUFA	0.000		0.334	0.053	0.757	0.064	0.000	0.314
ΣSC PUFA	0.000		0.319	0.097	0.209	0.000	0.000	0.758
ΣLC PUFA	0.000		0.772	0.053	0.693	0.000	0.000	0.902

Table S7. Chi-squared p-values from generalised linear model (GLM) testing for a global difference in individual fatty acids between treatments for male and female adductor muscle and gonad tissues. Significant values (<0.05) are in bold type.

df	Adductor muscle		Gonad	
	Female 2	Male 2	Female 2	Male 2
14:0	0.746	0.312	0.545	0.011
16:0	0.814	0.065	0.924	0.728
16:1	0.443	0.003	0.140	0.013
16:2n4	0.815	0.757	0.001	0.390
17:0	0.471	0.104	0.431	0.289
18:0	0.755	0.148	0.350	0.019
18:1n7	0.772	0.373	0.236	0.000
18:1n9c	0.076	0.755	0.000	0.001
18:2n6c	0.469	0.002	0.005	0.449
18:3n3	0.446	0.008	0.087	0.428
18:3n4	0.165	0.833	0.258	0.553
18:3n6	0.104	0.659	0.885	0.550
18:4n3	0.013	0.031	0.124	0.365
20:1	0.202	0.331	0.086	0.873
20:2	0.686	0.887	0.302	0.973
20:4n6	0.773	0.081	0.972	0.919
20:5n3	0.550	0.975	0.745	0.779
22:5n3	0.149	0.213	0.891	0.638
22:6n3	0.429	0.731	0.904	0.672