

# Matthew L Rise

## List of Publications by Year in descending order

Source: [//exaly.com/author-pdf/4963082/publications.pdf](https://exaly.com/author-pdf/4963082/publications.pdf)

Version: 2024-02-01

103  
papers

4,335  
citations

81134

38  
h-index

115754

61  
g-index

106  
all docs

106  
docs citations

106  
times ranked

5673  
citing authors

#	ARTICLE	IF	CITATIONS
1	Development and Application of a Salmonid EST Database and cDNA Microarray: Data Mining and Interspecific Hybridization Characteristics. <i>Genome Research</i> , 2004, 14, 478-490.	5.5	279
2	Fish and chips: Various methodologies demonstrate utility of a 16,006-gene salmonid microarray. <i>BMC Genomics</i> , 2005, 6, 126.	2.9	180
3	A Comparison of the Innate and Adaptive Immune Systems in Cartilaginous Fish, Ray-Finned Fish, and Lobe-Finned Fish. <i>Frontiers in Immunology</i> , 2019, 10, 2292.	4.8	169
4	Microarray analyses identify molecular biomarkers of Atlantic salmon macrophage and hematopoietic kidney response to <i>Piscirickettsia salmonis</i> infection. <i>Physiological Genomics</i> , 2004, 20, 21-35.	2.2	164
5	RNA viruses in the sea. <i>FEMS Microbiology Reviews</i> , 2009, 33, 295-323.	8.6	143
6	The fight between the teleost fish immune response and aquatic viruses. <i>Molecular Immunology</i> , 2010, 47, 2525-2536.	2.4	131
7	Domestication and growth hormone transgenesis cause similar changes in gene expression in coho salmon ( <i>Oncorhynchus kisutch</i> ). <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 3047-3052.	7.5	124
8	Transcriptome profiling the gills of amoebic gill disease (AGD)-affected Atlantic salmon ( <i>Salmo salar</i> ). <i>PLoS One</i> , 2010, 5, 1-10.	2.2	102
9	Functional Annotation of All Salmonid Genomes (FAASC): an international initiative supporting future salmonid research, conservation and aquaculture. <i>BMC Genomics</i> , 2017, 18, 484.	2.9	100
10	A physical map of the genome of Atlantic salmon, <i>Salmo salar</i> . <i>Genomics</i> , 2005, 86, 396-404.	2.9	98
11	A Comprehensive Survey of the Genes Involved in Maturation and Development of the Rainbow Trout Ovary 1. <i>Biology of Reproduction</i> , 2005, 72, 687-699.	2.6	95
12	Functional genomic analysis of the response of Atlantic cod ( <i>Gadus morhua</i> ) spleen to the viral mimic polyriboinosinic polyribocytidylic acid (pIC). <i>Developmental and Comparative Immunology</i> , 2008, 32, 916-931.	2.2	92
13	Transcriptome responses to heat stress in the nucleated red blood cells of the rainbow trout ( <i>Oncorhynchus mykiss</i> ). <i>Physiological Genomics</i> , 2010, 42, 361-373.	2.2	92
14	Identification and analysis of differentially expressed genes in immune tissues of Atlantic cod stimulated with formalin-killed, atypical <i>Aeromonas salmonicida</i> . <i>Physiological Genomics</i> , 2009, 37, 149-163.	2.2	88
15	The dietary replacement of marine ingredients by terrestrial animal and plant alternatives modulates the antiviral immune response of Atlantic salmon ( <i>Salmo salar</i> ). <i>Fish and Shellfish Immunology</i> , 2017, 64, 24-38.	3.7	76
16	Heat-shock responsive genes identified and validated in Atlantic cod ( <i>Gadus morhua</i> ) liver, head kidney and skeletal muscle using genomic techniques. <i>BMC Genomics</i> , 2010, 11, 72.	2.9	73
17	Transcriptome profiling of antiviral immune and dietary fatty acid dependent responses of Atlantic salmon macrophage-like cells. <i>BMC Genomics</i> , 2017, 18, 706.	2.9	70
18	Discovery of microRNAs associated with the antiviral immune response of Atlantic cod macrophages. <i>Molecular Immunology</i> , 2018, 93, 152-161.	2.4	70

#	ARTICLE	IF	CITATIONS
19	Growth performance, tissue composition, and gene expression responses in Atlantic salmon ( <i>Salmo</i> ) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Tf 50 14	3.5	67
20	Infectious salmon anaemia virus (ISAV) isolates induce distinct gene expression responses in the Atlantic salmon ( <i>Salmo salar</i> ) macrophage/dendritic-like cell line TO, assessed using genomic techniques. <i>Molecular Immunology</i> , 2009, 46, 2955-2974.	2.4	66
21	A moderate increase in ambient temperature modulates the Atlantic cod ( <i>Gadus morhua</i> ) spleen transcriptome response to intraperitoneal viral mimic injection. <i>BMC Genomics</i> , 2012, 13, 431.	2.9	62
22	Transcriptome profiling of the antiviral immune response in Atlantic cod macrophages. <i>Developmental and Comparative Immunology</i> , 2016, 63, 187-205.	2.2	59
23	Impact of asymptomatic nodavirus carrier state and intraperitoneal viral mimic injection on brain transcript expression in Atlantic cod ( <i>Gadus morhua</i> ). <i>Physiological Genomics</i> , 2010, 42, 266-280.	2.2	56
24	Atlantic salmon ( <i>Salmo salar</i> ) liver transcriptome response to diets containing <i>Camelina sativa</i> products. <i>Comparative Biochemistry and Physiology Part D: Genomics and Proteomics</i> , 2015, 14, 1-15.	1.1	55
25	The transcriptomic responses of Atlantic salmon ( <i>Salmo salar</i> ) to high temperature stress alone, and in combination with moderate hypoxia. <i>BMC Genomics</i> , 2021, 22, 261.	2.9	54
26	Changes in the liver transcriptome of farmed Atlantic salmon ( <i>Salmo salar</i> ) fed experimental diets based on terrestrial alternatives to fish meal and fish oil. <i>BMC Genomics</i> , 2018, 19, 796.	2.9	53
27	Molecular targets of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) within the zebrafish ovary: Insights into TCDD-induced endocrine disruption and reproductive toxicity. <i>Reproductive Toxicology</i> , 2008, 25, 47-57.	3.0	52
28	Characterization of the fatty acyl elongase (elovl) gene family, and hepatic elovl and delta-6 fatty acyl desaturase transcript expression and fatty acid responses to diets containing camelina oil in Atlantic cod ( <i>Gadus morhua</i> ). <i>Comparative Biochemistry and Physiology - B Biochemistry and Molecular Biology</i> , 2014, 175, 9-22.	1.7	52
29	Toxicological effect of single contaminants and contaminant mixtures associated with plant ingredients in novel salmon feeds. <i>Food and Chemical Toxicology</i> , 2014, 73, 157-174.	3.7	51
30	Immune modulatory properties of 6-gingerol and resveratrol in Atlantic salmon macrophages. <i>Molecular Immunology</i> , 2018, 95, 10-19.	2.4	47
31	<i>Aeromonas salmonicida</i> subsp. <i>salmonicida</i> Early Infection and Immune Response of Atlantic Cod ( <i>Gadus morhua</i> L.) Primary Macrophages. <i>Frontiers in Immunology</i> , 2019, 10, 1237.	4.8	47
32	The impact of a moderate chronic temperature increase on spleen immune-relevant gene transcription depends on whether Atlantic cod ( <i>Gadus morhua</i> ) are stimulated with bacterial versus viral antigens. <i>Genome</i> , 2013, 56, 567-576.	2.2	46
33	Characterization and expression studies of Gaduscidin-1 and Gaduscidin-2; paralogous antimicrobial peptide-like transcripts from Atlantic cod ( <i>Gadus morhua</i> ). <i>Developmental and Comparative Immunology</i> , 2011, 35, 399-408.	2.2	45
34	Characterization and expression analyses of five interferon regulatory factor transcripts ( <i>Irf4a</i> ,) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 14	3.7	44
35	DNA Methylation Dynamics in Atlantic Salmon ( <i>Salmo salar</i> ) Challenged With High Temperature and Moderate Hypoxia. <i>Frontiers in Marine Science</i> , 2021, 7, .	2.5	44
36	Effects of Vitamin D2 (Ergocalciferol) and D3 (Cholecalciferol) on Atlantic Salmon ( <i>Salmo salar</i> ) Primary Macrophage Immune Response to <i>Aeromonas salmonicida</i> subsp. <i>salmonicida</i> Infection. <i>Frontiers in Immunology</i> , 2019, 10, 3011.	4.8	43

#	ARTICLE	IF	CITATIONS
37	Development and Experimental Validation of a 20K Atlantic Cod ( <i>Gadus morhua</i> ) Oligonucleotide Microarray Based on a Collection of over 150,000 ESTs. <i>Marine Biotechnology</i> , 2011, 13, 733-750.	2.3	42
38	Characterization and Transcript Expression Analyses of Atlantic Cod Viperin. <i>Frontiers in Immunology</i> , 2019, 10, 311.	4.8	42
39	De novo assembly of Sockeye salmon kidney transcriptomes reveal a limited early response to piscine reovirus with or without infectious hematopoietic necrosis virus superinfection. <i>BMC Genomics</i> , 2016, 17, 848.	2.9	41
40	Effect of plant-based diets with varying ratios of 6 to 3 fatty acids on growth performance, tissue composition, fatty acid biosynthesis and lipid-related gene expression in Atlantic salmon ( <i>Salmo</i> ) TJ ETQq0 0 0 rgBT1,0verlock310 Tf 50 6		
41	An Integrated Approach to Gene Discovery and Marker Development in Atlantic Cod ( <i>Gadus morhua</i> ). <i>Marine Biotechnology</i> , 2011, 13, 242-255.	2.3	37
42	The Innate Immune Response of Atlantic Salmon ( <i>Salmo salar</i> ) Is Not Negatively Affected by High Temperature and Moderate Hypoxia. <i>Frontiers in Immunology</i> , 2020, 11, 1009.	4.8	37
43	Structure–function relationships in histidine-rich antimicrobial peptides from Atlantic cod. <i>Biochimica Et Biophysica Acta - Biomembranes</i> , 2015, 1848, 1451-1461.	2.7	35
44	Dietary Immunostimulant CpG Modulates MicroRNA Biomarkers Associated with Immune Responses in Atlantic Salmon ( <i>Salmo salar</i> ). <i>Cells</i> , 2019, 8, 1592.	4.2	35
45	Profiling the transcriptome response of Atlantic salmon head kidney to formalin-killed <i>Renibacterium salmoninarum</i> . <i>Fish and Shellfish Immunology</i> , 2020, 98, 937-949.	3.7	34
46	Family-specific differences in growth rate and hepatic gene expression in juvenile triploid growth hormone (GH) transgenic Atlantic salmon ( <i>Salmo salar</i> ). <i>Comparative Biochemistry and Physiology Part D: Genomics and Proteomics</i> , 2013, 8, 317-333.	1.1	33
47	Full characterization and transcript expression profiling of the interferon regulatory factor (IRF) gene family in Atlantic cod ( <i>Gadus morhua</i> ). <i>Developmental and Comparative Immunology</i> , 2019, 98, 166-180.	2.2	33
48	Transcriptomic Profiling in Fins of Atlantic Salmon Parasitized with Sea Lice: Evidence for an Early Imbalance Between Chalmus-Induced Immunomodulation and the Host's Defense Response. <i>International Journal of Molecular Sciences</i> , 2020, 21, 2417.	4.2	32
49	Successive Losses of Central Immune Genes Characterize the Gadiformes' Alternate Immunity. <i>Genome Biology and Evolution</i> , 2016, 8, 3508-3515.	2.6	30
50	Stimulation of growth and changes in the hepatic transcriptome by 17 $\beta$ -estradiol in the yellow perch ( <i>Perca flavescens</i> ). <i>Physiological Genomics</i> , 2009, 38, 261-280.	2.2	29
51	Minimizing marine ingredients in diets of farmed Atlantic salmon ( <i>Salmo salar</i> ): Effects on growth performance and muscle lipid and fatty acid composition. <i>PLoS ONE</i> , 2018, 13, e0198538.	2.5	28
52	Atlantic cod ( <i>Gadus morhua</i> ) CC chemokines: Diversity and expression analysis. <i>Developmental and Comparative Immunology</i> , 2010, 34, 904-913.	2.2	27
53	Evaluation of the impact of camelina oil-containing diets on the expression of genes involved in the innate anti-viral immune response in Atlantic cod ( <i>Gadus morhua</i> ). <i>Fish and Shellfish Immunology</i> , 2014, 41, 52-63.	3.7	26
54	Characterization and expression analyses of anti-apoptotic Bcl-2-like genes NR-13, Mcl-1, Bcl-X1, and Bcl-X2 in Atlantic cod ( <i>Gadus morhua</i> ). <i>Molecular Immunology</i> , 2010, 47, 763-784.	2.4	25

#	ARTICLE	IF	CITATIONS
55	Transcriptome profiling reveals that feeding wild zooplankton to larval Atlantic cod ( <i>Gadus morhua</i> ) influences suites of genes involved in oxidation-reduction, mitosis, and selenium homeostasis. <i>BMC Genomics</i> , 2015, 16, 1016.	2.9	25
56	An improved version of the Atlantic cod genome and advancements in functional genomics: implications for the future of cod farming. , 2016, , 45-72.		25
57	Transcriptomic Profiling of the Adaptive and Innate Immune Responses of Atlantic Salmon to <i>Renibacterium salmoninarum</i> Infection. <i>Frontiers in Immunology</i> , 2020, 11, 567838.	4.8	23
58	Deciphering the messages carried by extracellular vesicles in hematological malignancies. <i>Blood Reviews</i> , 2021, 46, 100734.	6.1	23
59	Variation in embryonic mortality and maternal transcript expression among Atlantic cod ( <i>Gadus</i> ) Tj ETQq1 1 0.784314 rgBT /Overlock 11 22	1.1	22
60	Functional Genomic Analysis of the Impact of Camelina ( <i>Camelina sativa</i> ) Meal on Atlantic Salmon ( <i>Salmo salar</i> ) Distal Intestine Gene Expression and Physiology. <i>Marine Biotechnology</i> , 2016, 18, 418-435.	2.3	20
61	Characterization of miRNAs in Cultured Atlantic Salmon Head Kidney Monocyte-Like and Macrophage-Like Cells. <i>International Journal of Molecular Sciences</i> , 2020, 21, 3989.	4.2	20
62	Gene expression and pathologic alterations in juvenile rainbow trout due to chronic dietary TCDD exposure. <i>Aquatic Toxicology</i> , 2013, 140-141, 356-368.	4.0	19
63	Transcriptome Profiling of Atlantic Salmon ( <i>Salmo salar</i> ) Parr With Higher and Lower Pathogen Loads Following <i>Piscirickettsia salmonis</i> Infection. <i>Frontiers in Immunology</i> , 2021, 12, 789465.	4.8	19
64	Meeting the Challenges of Aquatic Vertebrate Ecotoxicology. <i>BioScience</i> , 2008, 58, 1015-1025.	4.8	18
65	Dynamic expression profiles of virus-responsive and putative antimicrobial peptide-encoding transcripts during Atlantic cod ( <i>Gadus morhua</i> ) embryonic and early larval development. <i>Gene</i> , 2012, 509, 232-246.	2.3	18
66	Transcriptomic Responses of Atlantic Salmon ( <i>Salmo salar</i> ) to Environmental Enrichment during Juvenile Rearing. <i>PLoS ONE</i> , 2015, 10, e0118378.	2.5	18
67	Liver Transcriptome Profiling Reveals That Dietary DHA and EPA Levels Influence Suites of Genes Involved in Metabolism, Redox Homeostasis, and Immune Function in Atlantic Salmon ( <i>Salmo salar</i> ). <i>Marine Biotechnology</i> , 2020, 22, 263-284.	2.3	18
68	Characterization of miRNAs in Extracellular Vesicles Released From Atlantic Salmon Monocyte-Like and Macrophage-Like Cells. <i>Frontiers in Immunology</i> , 2020, 11, 587931.	4.8	17
69	The mRNA expression of cortisol axis related genes differs in Atlantic cod ( <i>Gadus morhua</i> ) categorized as high or low responders. <i>General and Comparative Endocrinology</i> , 2012, 175, 311-320.	1.7	16
70	Impact of rearing temperature on the innate antiviral immune response of growth hormone transgenic female triploid Atlantic salmon ( <i>Salmo salar</i> ). <i>Fish and Shellfish Immunology</i> , 2020, 97, 656-668.	3.7	15
71	<i>Schizochytrium</i> sp. (T18) Oil as a Fish Oil Replacement in Diets for Juvenile Rainbow Trout ( <i>Oncorhynchus mykiss</i> ): Effects on Growth Performance, Tissue Fatty Acid Content, and Lipid-Related Transcript Expression. <i>Animals</i> , 2021, 11, 1185.	2.3	15
72	The Atlantic salmon's stress- and immune-related transcriptional responses to moderate hypoxia, an incremental temperature increase, and these challenges combined. <i>G3: Genes, Genomes, Genetics</i> , 2021, 11, .	1.9	15

#	ARTICLE	IF	CITATIONS
73	Identification and molecular cloning of Atlantic cod ( <i>Gadus morhua</i> ) activating transcription factor 3 (ATF3) transcript and its induction in spleen following intraperitoneal polyriboinosinic polyribocytidylic acid injection. <i>Fish and Shellfish Immunology</i> , 2011, 31, 475-481.	3.7	14
74	An investigation of appetite-related peptide transcript expression in Atlantic cod ( <i>Gadus morhua</i> ) brain following a <i>Camelina sativa</i> meal-supplemented feeding trial. <i>Gene</i> , 2014, 550, 253-263.	2.3	14
75	Sockeye salmon demonstrate robust yet distinct transcriptomic kidney responses to rhabdovirus (IHNV) exposure and infection. <i>Fish and Shellfish Immunology</i> , 2019, 94, 525-538.	3.7	14
76	Gill and Liver Transcript Expression Changes Associated With Gill Damage in Atlantic Salmon ( <i>Salmo</i> ) Tj ETQq0 0 0 rgBT /Overlock 10 Tf	4.8	14
77	Cold-induced changes in stress hormone and steroidogenic transcript levels in cunner ( <i>Tautoglabrus adspersus</i> ), a fish capable of metabolic depression. <i>General and Comparative Endocrinology</i> , 2015, 224, 126-135.	1.7	13
78	Interaction between <i>n</i> -6 and <i>n</i> -3 fatty acids of different chain lengths regulates Atlantic salmon hepatic gene expression and muscle fatty acid profiles. <i>Philosophical Transactions of the Royal Society B: Biological Sciences</i> , 2020, 375, 20190648.	4.1	12
79	Growth performance and nutrient utilization of growth hormone transgenic female triploid Atlantic salmon ( <i>Salmo salar</i> ) reared at three temperatures in a land-based freshwater recirculating aquaculture system (RAS). <i>Aquaculture</i> , 2020, 519, 734896.	3.5	11
80	Influence of Dietary Long-Chain Polyunsaturated Fatty Acids and <i>n</i> -6 to <i>n</i> -3 Ratios on Head Kidney Lipid Composition and Expression of Fatty Acid and Eicosanoid Metabolism Genes in Atlantic Salmon ( <i>Salmo</i> ) Tj ETQq0 0 0 rgBT /Overlock 10	4.8	11
81	Global gene expression responses of Atlantic salmon skin to <i>Moritella viscosa</i> . <i>Scientific Reports</i> , 2022, 12, 4622.	3.4	11
82	Plant-Based Diets Induce Transcriptomic Changes in Muscle of Zebrafish and Atlantic Salmon. <i>Frontiers in Genetics</i> , 2020, 11, 575237.	2.3	10
83	Transcriptome Profiling of Atlantic Salmon Adherent Head Kidney Leukocytes Reveals That Macrophages Are Selectively Enriched During Culture. <i>Frontiers in Immunology</i> , 2021, 12, 709910.	4.8	10
84	Interacting Effects of Sea Louse ( <i>Lepeophtheirus salmonis</i> ) Infection and Formalin-Killed <i>Aeromonas salmonicida</i> on Atlantic Salmon Skin Transcriptome. <i>Frontiers in Immunology</i> , 2022, 13, 804987.	4.8	10
85	Diet-Induced Physiological Responses in the Liver of Atlantic Salmon ( <i>Salmo salar</i> ) Inferred Using Multiplex PCR Platforms. <i>Marine Biotechnology</i> , 2020, 22, 511-525.	2.3	9
86	Evaluation of enzyme- and <i>Rhizopus oligosporus</i> -treated high oil residue camelina meal on rainbow trout growth performance and distal intestine histology and inflammatory biomarker gene expression. <i>Aquaculture</i> , 2018, 483, 27-37.	3.5	7
87	Freshwater, Landlocked Grand Lake Strain of Atlantic Salmon ( <i>Salmo salar</i> L.) as a Potential Genetic Source of Long Chain Polyunsaturated Fatty Acids Synthesis. <i>Frontiers in Marine Science</i> , 2021, 8, .	2.5	7
88	Impact of origin (wild vs. farmed) and sea lice ( <i>Lepeophtheirus salmonis</i> ) infestation on expression of immune-relevant genes in Atlantic salmon ( <i>Salmo salar</i> L.) skin. <i>Aquaculture</i> , 2019, 499, 306-315.	3.5	6
89	Phenotypic stress response does not influence the upper thermal tolerance of male Atlantic salmon ( <i>Salmo salar</i> ). <i>Journal of Thermal Biology</i> , 2021, 101, 103102.	2.6	6
90	Reverse Transcription-Quantitative Real-Time Polymerase Chain Reaction (RT-qPCR) for Gene Expression Analyses. <i>Methods in Molecular Biology</i> , 2022, , 319-340.	0.7	6

#	ARTICLE	IF	CITATIONS
91	Characterization of miRNAs in Embryonic, Larval, and Adult Lumpfish Provides a Reference miRNAome for <i>Cyclopterus lumpus</i> . <i>Biology</i> , 2022, 11, 130.	2.9	5
92	RNA-Seq Analysis of the Growth Hormone Transgenic Female Triploid Atlantic Salmon ( <i>Salmo salar</i> ) Hepatic Transcriptome Reveals Broad Temperature-Mediated Effects on Metabolism and Other Biological Processes. <i>Frontiers in Genetics</i> , 0, 13, .	2.3	5
93	Minimizing marine ingredients in diets of farmed Atlantic salmon ( <i>Salmo salar</i> ): effects on liver and head kidney lipid class and fatty acid composition. <i>Fish Physiology and Biochemistry</i> , 2020, 46, 2331-2353.	2.2	4
94	RNA-seq analysis of the mantle transcriptome from <i>Mytilus edulis</i> during a seasonal spawning event in deep and shallow water culture sites on the northeast coast of Newfoundland, Canada. <i>Marine Genomics</i> , 2021, 60, 100865.	1.1	4
95	Influence of Varying Dietary 6 to 3 Fatty Acid Ratios on the Hepatic Transcriptome, and Association with Phenotypic Traits (Growth, Somatic Indices, and Tissue Lipid Composition), in Atlantic Salmon ( <i>Salmo salar</i> ). <i>Biology</i> , 2021, 10, 578.	2.9	4
96	Atlantic Salmon ( <i>Salmo salar</i> ) bacterial and viral innate immune responses are not impaired by florfenicol or tetracycline administration. <i>Fish and Shellfish Immunology</i> , 2022, 123, 298-313.	3.7	4
97	Aquaculture-Related Applications of DNA Microarray Technology. , 2009, , 63-101.		3
98	Distinct early life stage gene expression effects of hybridization among European and North American farmed and wild Atlantic salmon populations. <i>Molecular Ecology</i> , 2022, 31, 2712-2729.	3.6	2
99	Genomic Tools for Understanding the Molecular Basis of Production-Relevant Traits in Finfish. , 2011, , 1-19.		1
100	The Application of Genomics, Proteomics, and Metabolomics to Studies of Fish Health. , 2011, , 81-104.		1
101	Corrigendum to "Immune modulatory properties of 6-gingerol and resveratrol in Atlantic salmon macrophages" [Mol. Immunol. 95 (2018) 10-19]. <i>Molecular Immunology</i> , 2020, 126, 167.	2.4	1
102	Functional Genomics Research of Atlantic Cod ( <i>Gadus morhua</i> ). , 2012, , 339-348.		0
103	Evaluation of high oil residue camelina meal (HORM) on Atlantic salmon ( <i>Salmo salar</i> ) growth performance, carcass composition, intestinal morphology and inflammatory biomarker gene expression. <i>Aquaculture Nutrition</i> , 0, , .	2.7	0