

SUMMARY OF SUBMISSIONS TO THE ZIRC DIAGNOSTIC SERVICE

Year	2006		2007		2008		2009		2010		2011		2012		2013		2014		2015	
# cases submitted to the diagnostic service	35		39		44		49		38		80		95		96		60		51	
# submitting facilities	26		25		27		29		23		43		46		68		28		28	
# facilities reporting clinical disease	19		23		22		19		10		31		30		47		18		17	
total # fish submitted	277		348		496		576		591		1111		1441		1294		1279		762	

Percentages of total fish examined and submitting facilities diagnosed with the disease

	fish	facilities	fish	facilities	fish	facilities	fish	facilities	fish	facilities	fish	facilities	fish	facilities	fish	facilities	fish	facilities	fish	facilities
<i>Pseudoloma neurophilia</i>	10.83	19.23	11.21	52.00	21.37	62.96	20.49	51.72	30.29	73.91	17.46	46.51	13.12	60.87	11.44	30.88	11.73	39.29	7.74	46.43
<i>Pleistophora hypohessobryconis</i>	0.00	0.00	0.00	0.00	0.00	0.00	1.22	6.90	0.34	4.35	0.27	4.65	1.53	4.35	0.00	0.00	0.00	0.00	0.13	3.57
<i>Mycobacterium</i> spp.	6.86	46.15	6.32	36.00	9.88	48.15	4.69	34.48	5.25	43.48	5.31	32.56	5.27	43.48	6.18	33.82	3.44	42.86	5.77	39.29
Bacterial infection (non-acid fast)	4.33	26.92	0.57	8.00	0.40	7.41	0.52	10.34	0.00	0.00	0.36	6.98	0.42	10.87	0.39	2.94	0.08	3.57	0.39	10.71
<i>Pseudocapillaria tomentosa</i>	0.00	0.00	3.16	20.00	0.60	11.11	0.17	3.45	1.18	13.04	3.60	16.28	1.32	13.04	1.47	8.82	1.33	14.29	0.66	14.29
Other helminths	0.00	0.00	2.30	12.00	0.00	0.00	0.17	3.45	0.17	4.35	0.09	2.33	0.14	4.35	0.08	1.47	0.00	0.00	0.00	0.00
<i>Myxidium streisingeri</i>	3.25	11.54	3.45	20.00	2.82	22.22	1.91	20.69	4.06	30.43	4.23	27.91	4.02	34.78	2.32	14.71	2.74	25.00	4.72	25.00
Fungal infection	0.00	0.00	0.29	4.00	0.20	3.70	0.00	0.00	0.00	0.00	0.09	2.33	0.35	2.17	0.00	0.00	0.00	0.00	0.13	3.57
hepatic megalocytosis	3.25	11.54	2.59	12.00	7.26	25.93	14.76	34.48	13.71	30.43	13.68	34.88	6.11	32.61	8.04	17.65	12.04	64.29	12.47	28.57
Egg-associated inflammation/oophoritis	13.72	61.54	10.92	36.00	19.76	55.56	12.15	68.97	6.26	43.48	5.22	39.53	4.44	52.17	10.59	36.76	11.88	67.86	11.29	57.14
Nephrocalcinosis	1.08	11.54	0.86	4.00	2.62	18.52	2.08	20.69	1.35	26.09	2.52	25.58	2.15	30.43	3.25	19.12	2.42	39.29	2.62	25.00
Gill lesions	5.78	15.38	0.86	8.00	2.62	11.11	2.78	17.24	3.21	8.70	6.84	32.56	2.91	23.91	3.55	20.59	2.03	35.71	1.97	25.00
<i>Edwardsiella ictaluri</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	6.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Duct hyperplasia (pancreatic or biliary)	2.17	23.08	1.44	16.00	4.03	44.44	1.22	20.69	1.69	21.74	1.89	13.95	1.11	19.57	1.08	14.71	1.02	21.43	2.49	35.71
Intestinal neoplasia, dysplasia, or hyperplasia	2.53	11.54	1.44	16.00	4.03	22.22	1.39	10.34	3.21	8.70	7.11	11.63	1.94	6.52	2.01	11.76	2.27	21.43	1.97	17.86
Seminoma	6.86	23.08	1.72	12.00	2.62	25.93	1.74	20.69	0.85	17.39	1.89	18.60	1.60	28.26	1.39	14.71	1.95	28.57	2.10	21.43
Ultimobranchial adenoma or adenocarcinoma	0.00	0.00	0.29	4.00	1.41	14.81	1.74	13.79	1.02	21.74	0.90	13.95	0.28	8.70	0.77	8.82	0.39	7.14	0.66	7.14
Chordoma	0.36	3.85	0.00	0.00	0.20	3.70	0.17	3.45	0.34	8.70	0.09	2.33	0.00	0.00	0.00	0.00	0.00	0.00	1.57	25.00
Other neoplasia	1.81	15.38	1.44	12.00	2.22	25.93	1.04	10.34	1.35	8.70	0.81	13.95	0.56	13.04	1.31	14.71	0.63	17.86	2.23	25.00
Spinal deformity (in histologic sections)	2.53	15.38	0.29	4.00	1.21	11.11	1.91	20.69	0.34	4.35	0.99	9.30	1.39	26.09	0.93	11.76	2.97	42.86	0.00	0.00
<i>Piscinoodinium pillulare</i>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	2.33	0.83	2.17	0.54	1.47	0.00	0.00	1.44	7.14
Aerocystitis - etiology unknown	1.44	11.54	2.30	20.00	1.61	25.93	0.52	6.90	0.00	0.00	1.08	6.98	0.21	6.52	0.70	7.35	1.17	21.43	0.79	14.29
Coelomitis - etiology unknown	1.44	15.38	0.57	8.00	0.60	7.41	1.39	17.24	0.68	13.04	2.43	18.60	1.18	19.57	2.01	20.59	3.67	35.71	0.00	0.00
Intersex	0.00	0.00	0.57	8.00	0.20	3.70	0.17	3.45	0.34	8.70	0.09	2.33	0.21	4.35	0.15	2.94	0.16	3.57	0.13	3.57

SUMMARY OF ZIRC IN-HOUSE DIAGNOSTIC TESTING

Year	2006		2007		2008		2009		2010		2011		2012		2013		2014		2015	
Total # Main Room fish sampled	170		132		698		395		411		389		499		787		1038		1330	
# Quarantine Room fish sampled	0		2		1		0		0		11		117		125		308		N/A	

Total number of fish diagnosed with the disease in the ZIRC Main Fish Room (M) and Quarantine Room (Q)

	M	Q	M	Q	M	Q	M	Q	M	Q	M	Q	M	Q	M	Q	M	Q	M	Q
<i>Pseudoloma neurophilia</i>	25	-	27	0	182	0	58	-	49	-	0	3	0	15	24	18	130	26	134	0
<i>Pleistophora hypohessobryconis</i>	0	-	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	0	0
<i>Mycobacterium</i> spp.*	46	-	3	0	50	0	7	-	7	-	27	0	15	4	2	1	10	7	13	0
Bacterial infection (non-acid fast)	2	-	0	0	0	0	0	-	0	-	0	0	1	0	0	0	0	0	0	0
<i>Pseudocapillaria tomentosa</i>	0	-	0	0	0	1	0	-	0	-	0	0	0	8	0	0	0	0	0	0
Other helminths	0	-	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	0	0
<i>Myxidium streisingeri</i>	0	-	0	1	0	0	0	-	0	-	0	0	0	0	0	0	0	0	32	0
Fungal infection	1	-	0	0	0	0	0	-	0	-	0	0	1	0	0	0	0	0	0	0
hepatic megalocytosis	12	-	9	0	131	0	28	-	33	-	59	1	62	6	104	9	157	14	163	0
Egg-associated inflammation/oophoritis	20	-	25	0	123	0	26	-	12	-	8	0	8	0	55	9	58	1	75	0
Nephrocalcinosis	2	-	0	0	9	0	4	-	2	-	4	0	15	1	18	0	16	0	12	0
Gill lesions	0	-	0	0	0	0	0	-	0	-	0	8	1	10	3	20	0	14	0	0
<i>Edwardsiella ictaluri</i>	0	-	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	0	0
Duct hyperplasia (pancreatic or biliary)	0	-	0	0	9	0	0	-	0	-	0	0	3	3	2	3	2	0	4	0
Intestinal neoplasia, dysplasia, or hyperplasia	0	-	0	0	0	0	2	-	0	-	3	0	1	2	3	1	12	2	15	2
Seminoma	0	-	0	0	0	0	2	-	0	-	0	0	0	0	5	0	3	1	3	0
Ultimobranchial adenoma or adenocarcinoma	1	-	0	0	4	0	4	-	0	-	0	0	1	0	5	1	1	0	1	0
Chordoma	0	-	1	0	2	0	1	-	0	-	0	0	2	1	2	0	2	0	1	0
Other neoplasia	2	-	0	0	20	0	11	-	0	-	1	0	3	1	14	2	10	1	18	0
Spinal deformity (in histologic sections)	0	-	3	0	2	0	6	-	0	-	17	0	3	0	6	0	12	0	33	0
<i>Piscinoodinium pillulare</i>	0	-	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	0	0
Aerocystitis - etiology unknown	0	-	2	2	0	0	0	-	0	-	0	0	0	0	1	3	5	0	1	0
Coelomitis - etiology unknown	1	-	1	0	6	0	5	-	1	-	1	0	2	3	2	5	4	2	9	0
Intersex	0	-	0	0	0	0	0	-	0	-	0	0	0	0	0	0	0	0	0	0

***Mycobacterium spp.**

A single species of *Mycobacterium*, *M. chelonae*, has been identified from zebrafish and biofilms in the ZIRC Main Fish Room (Whipps et al., 2008). ZIRC sends all paraffin blocks of fish diagnosed with mycobacteriosis to the Oregon State University Veterinary Diagnostic Laboratory for a qPCR assay to identify the species of *Mycobacterium*. *M. chelonae* is the only species that has been identified in ZIRC fish.