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**Additional file 1. Infectious hematopoietic necrosis virus pathogen load in fish tissues.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Pathway of infection** | **Sampling** | **Tissue sampled** | **Virus concentration (TCID50)\* g-1 tissue** | **Virus concentration (PFU)\*\* g-1 tissue or mL-1 fluid** | **Reference** |
| Rainbow trout (steelhead) | Natural infection, carrier fish | Spawning male | Spleen |   | 101.7 - 108.08 | [[118](#_ENREF_118)] |
| Kidney |   | 102.18 - 107.9 |
| Rainbow trout | Natural infection, disease epizootic | Apparently healthy; no other data | Fin tissue |   | 1.0 × 102 - 4.0 × 104 (4/24 fish) | [[41](#_ENREF_41)] |
| Clinically diseased; no other data |   | 1.0 × 103 - 2.14 × 106 (33/36 fish) |
| Rainbow trout | Natural infection, disease epizootic | Mean weight 13 g, “hematopoietic” form of disease at start of epizootic | Kidney/spleen |   | 4 × 104 - >2 × 107 | [[130](#_ENREF_130)] |
| Brain |   | 1.1 × 105 - 2.4 × 106 |
| Mean weight 5 g, “neurotrophic” form of disease at end of epizootic | Kidney/spleen |   | Not detected |
| Brain |   | 3.6 × 105 - 2.0 × 107 |
| Rainbow trout (steelhead) | Natural infection, carrier fish | Adult | Mucus |   | 102.6 (mean concentration) | [[117](#_ENREF_117)] |
| Gill |   | 102.5 (mean concentration) |
| Chinook salmon | Natural infection, chronic mortality | Yearling | Nervous tissue |   | 102 - 106 | [[117](#_ENREF_117)]  |
| Mucus |   | 101.3 - 102.4 |   |
| Natural infection, disease epizootic | Juvenile | Mucus |   | 102.5 - 105.8 |   |
| Natural infection, carrier fish | Adult | Mucus |   | 102.2 - 102.7 |   |
| Landlocked sockeye salmon (kokanee) | Natural infection, carrier fish | Spawning female | Mucus |   | 104.2 (mean concentration) | [[117](#_ENREF_117)]  |
| Spawning male | Mucus |   | 103.3 (mean concentration) |   |
| Atlantic salmon | Natural infection, seawater | Commercial size, moribund | Mucus |   | 103.3 | G S Traxler cited by Evelyn [[138](#_ENREF_138)] |
| Visceral tissue |   | 105 |
| Sockeye salmon | Natural infection, carrier fish | Prespawning female | Spleen |   | 1.6 × 104 | [[148](#_ENREF_148)] |
| Kidney |   | 6.5 × 103 |
| Liver |   | 3.1 × 104 |
| Lower gut |   | 1.1 × 104 |
| Pyloric ceca |   | 3.0 x 104 |
| Gill |   | 5.4 × 103 |
| Brain |   | 5.5 × 102 |
| Ripe females | Spleen |   | 2.3 × 105 |
| Kidney |   | 1.4 × 105 |
| Liver |   | 1.5 × 105 |
| Lower gut |   | 4.5 × 105 |
| Pyloric ceca |   | 2.4 × 105 |
| Gill |   | 2.7 × 105 |
| Brain |   | 9.3 × 102 |
| Spent females | Spleen |   | 2.2 × 104 |
| Kidney |   | 3.1 × 104 |
| Liver |   | 2.2 × 103 |
| Lower gut |   | 4.3 × 103 |
| Pyloric ceca |   | 1.5 × 103 |
| Gill |   | 7.9 × 103 |
| Brain |   | 1.5 × 102 |
| Spawning males | Spleen |   | 4.7 × 106 |
| Kidney |   | 5.8 × 104 |
| Liver |   | 1.1 × 105 |
| Lower gut |   | 2.5 × 106 |
| Pyloric ceca |   | 2.7 × 106 |
| Gill |   | 3.8 × 106 |
| Brain |   | 1.1 × 103 |
| Landlocked sockeye salmon (kokanee) | Diseases epizootic | 2 years old fish |   |   |   | [[74](#_ENREF_74)] |
| Dead fish | Kidney |   | 9.0 × 105 - 1.3 × 109 |
| Moribund fish | Kidney |   | 2.9 × 108 - 1.0 × 109 |
| Moribund fish | Gill |   | 2.5 × 107 - 5.5 × 107 |
| Brown trout | Disease epizootic in summer steelhead (rainbow) trout | Fingerling, 8 month old (dead) | Pools of gill, kidney and spleen | 1.0 × 105 - 2.8 × 108 |   | [[100](#_ENREF_100)] |
| Fingerling, 8 month old (live) |  | <10 to 7.9 × 103 |   |
| Rainbow trout | Experimental infection, immersion | Fry, average weight 0.6 g, 4-9 days post infection | Whole fry | >107 |   | [[121](#_ENREF_121)] |
| Rainbow trout |   | Fry, average weight 10 g | Kidney |   | 102.8 (2 days p.i.\*\*\*) 107.7 (7-8 days p.i.) <102 (22 days p.i.) | [[38](#_ENREF_38)] |
| Rainbow trout | Experimental infection, immersion | Fry, average weight 1 g | Mucus |   | 1 × 104 - 4 × 108 (6-14 days pi) | [[37](#_ENREF_37)] |
| Whole fry |   | 4 × 104 - 5 × 109 (6-14 days pi) |
| Rainbow trout | Experimental infection, immersion | Fry, average weight 1.6 g or 2.3 g | Whole fish, kidney/spleen or brain |   | 105 (mean titre) | [[130](#_ENREF_130)] |
| Rainbow trout | Experimental infection, immersion | 2 month old (sampled after infection) | kidney, pyloric caeca, spleen or heart | 104 - 107 |   | [[130](#_ENREF_130)]  |
| Intestine or stomach | 103 – 106 |   |   |
| Liver | 104 – 106 |   |   |
| Brain  | 103 – 105 |   |   |
| Gill | 103 – 107 |   |   |
| Rainbow trout | Experimental infection, immersion | 4 month old (dead fish) | Pooled organs | 102 - 106 |   | [[130](#_ENREF_130)]  |
| Rainbow trout | Experimental infection, intraperitoneal injection (two studies) | Average weight 100 g, dead fish | Kidney |   | 106.9 and 107.1 (mean titre) | [[137](#_ENREF_137)] |
| Brain |   | 105.8 (mean titre), both studies  |
| Survivors (days 34-76 pi) | KidneyBrain |    | Virus only detected in one study, in brain at 34 days pi |
| Chinook salmon | Experimental infection, immersion | Sexually mature females, 4-14 days pi | Gill |   | 1.25 × 104 - 1.78 × 107 | [[75](#_ENREF_75)] |
| Kidney/spleen |   | 5.0 × 102 - 4.68 × 105 |
| Brook trout | Experimental infection, immersion | Fry, 3 months old | Dead fish |   | >105 | [[87](#_ENREF_87)] |
| Asymptomatic survivors, 3 weeks pi |   | 104.23 |
| Coho salmon | Experimental infection, intraperitoneal injection | Mean weight 9 g | Dead fish (1) |   |   | [[60](#_ENREF_60)] |
| Kidney spleen |   | 3.0 × 106 |
| Liver |   | 1.8 × 105 |
| Brain |   | 6.0 × 103 |

 \* 50% tissue culture infectious dose

\*\* Plaque forming units

\*\*\* Post infection