

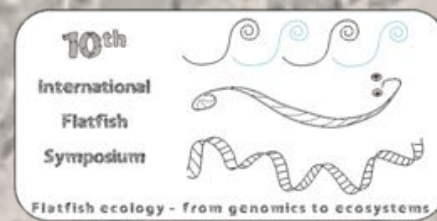
Effects of the Parasite *Ichthyophonus* (spp.) on Pacific Halibut (*Hippoglossus stenolepis*) Growth and Condition

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Ichthyophonus (spp.)

- Mesomycetozoea
 - Schizonts & hyphae
- First described in 1893
- Reported in 145 fish species
- Globally distributed
- Linked to mass mortalities & epizootics

[Rahimian and Thulin 1996; Kocan et al. 2004; Hershberger et al. 2002]



Host signs

- **“Ichthyophoniasis”**
- Infection routes debated
- Physical & physiological effects
- General prevalence increase with host age and size

[Hershberger et al. 2002; Kramer-Schadt et al. 2010]

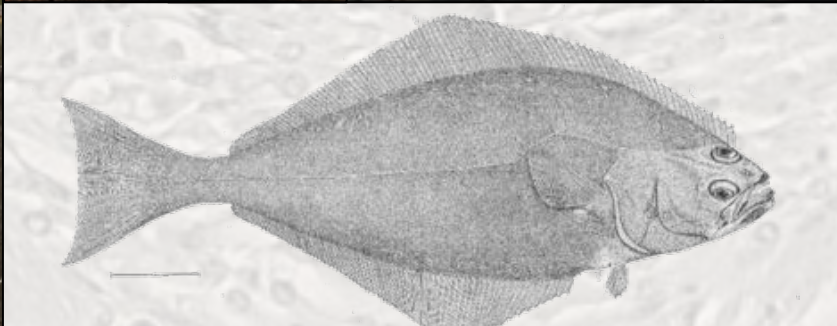
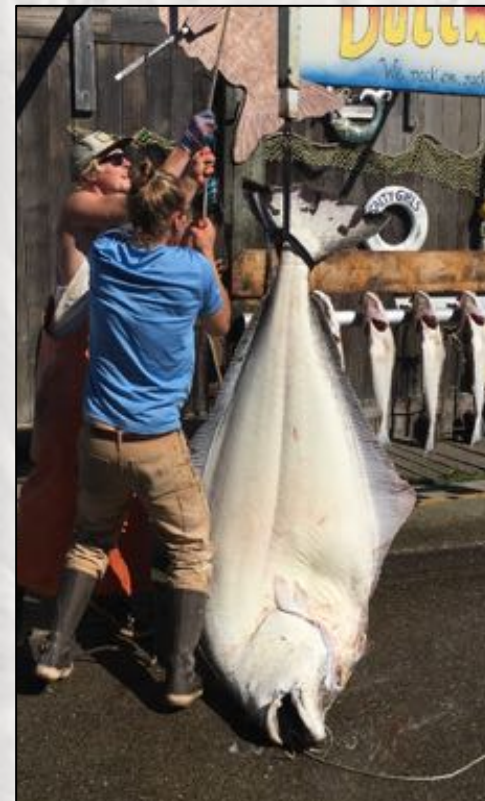


Ichthyophonus in Alaska (AK), United States



Study subject/host species

- Pacific halibut (*Hippoglossus stenolepis*)



Research objectives

1. Explore *Ichthyophonus* trends in AK P. halibut from 2011-2017
2. Assess physiological effects of parasite using condition analyses



Methods – study site



"Post-mortem, pre-dumpster"



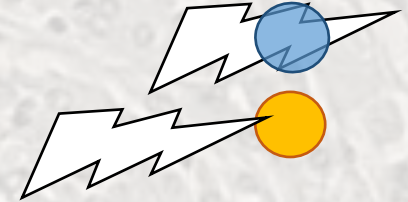
Methods

Bioelectrical Impedance Analysis

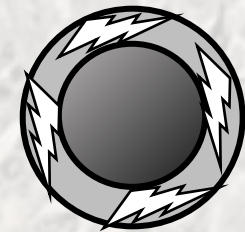


IMPEDANCE (Z)

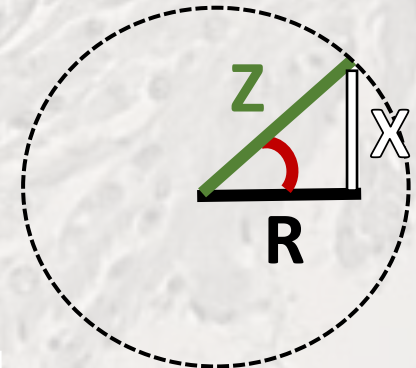
Resistance (R)



Reactance (X)

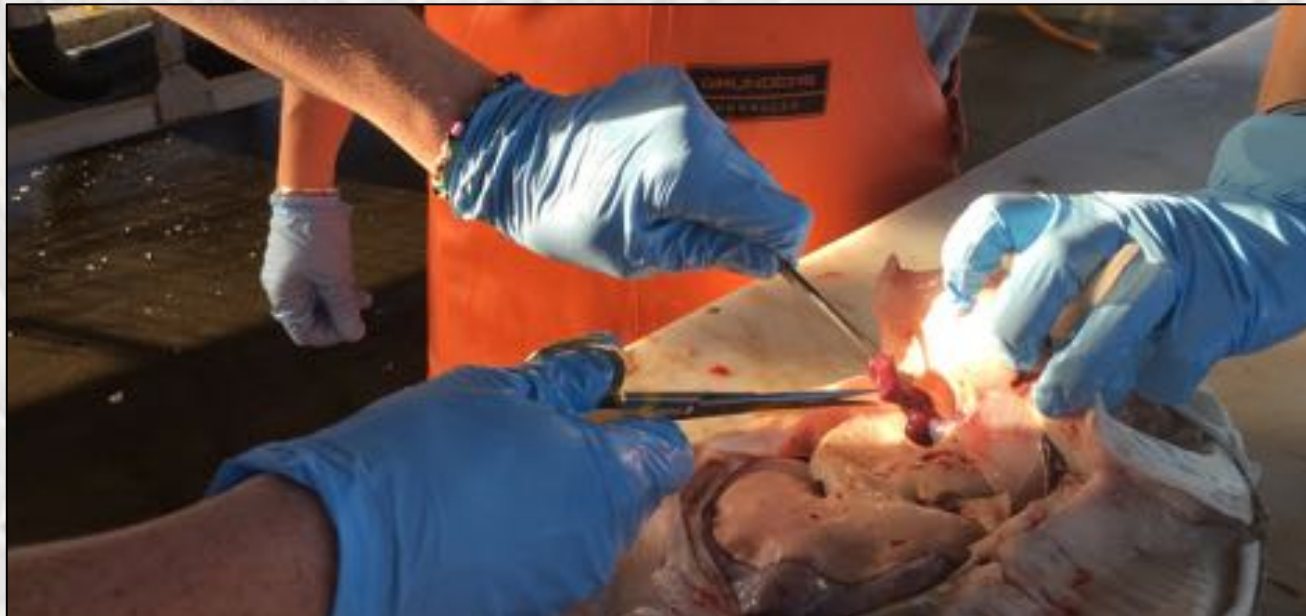


PHASE ANGLE



↓ = poorer condition

Methods

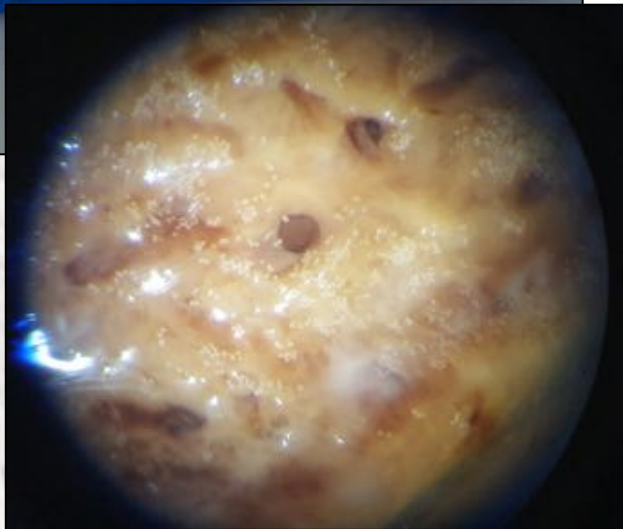
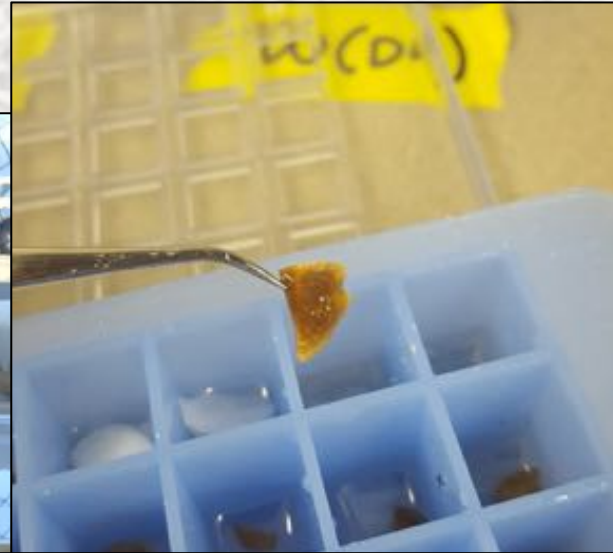


Methods

- Parasite detection via tissue explant culture
- Tissue examined after 7 and 14 days



Results

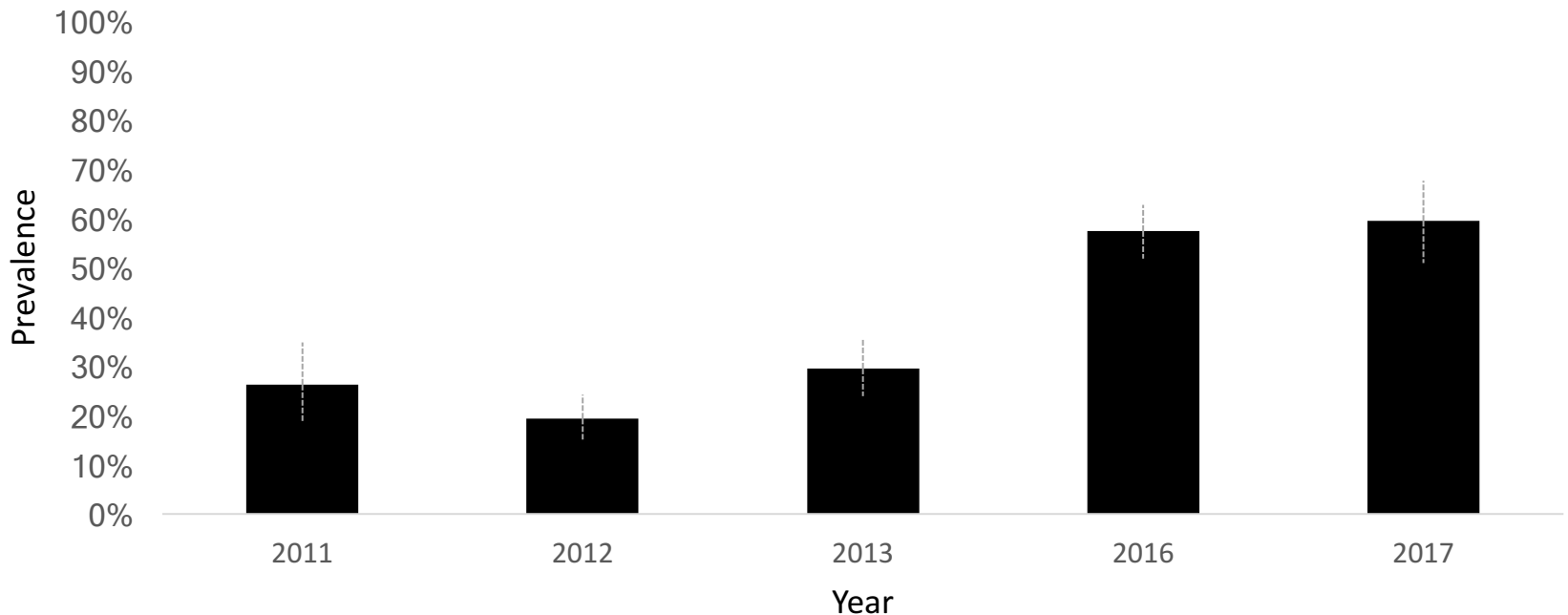


Results

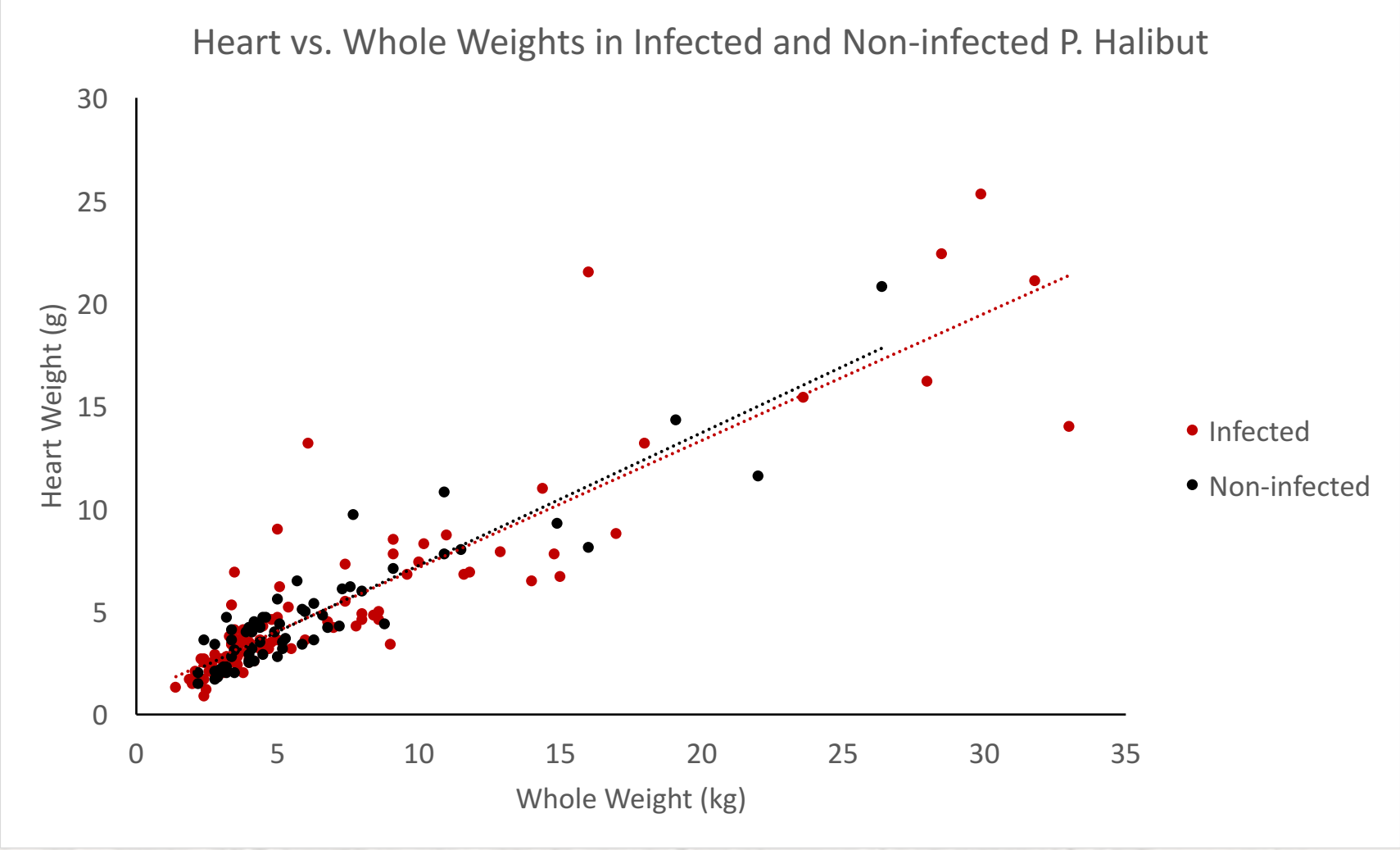
- General linear models (binomial)

Culture (+/- Ich) ~ Year + Sex + Length + Age + Length*Sex + Gape

Ichthyophonous Prevalence in P. Halibut from Homer, AK from 2011-2017



Results – *heart weight*

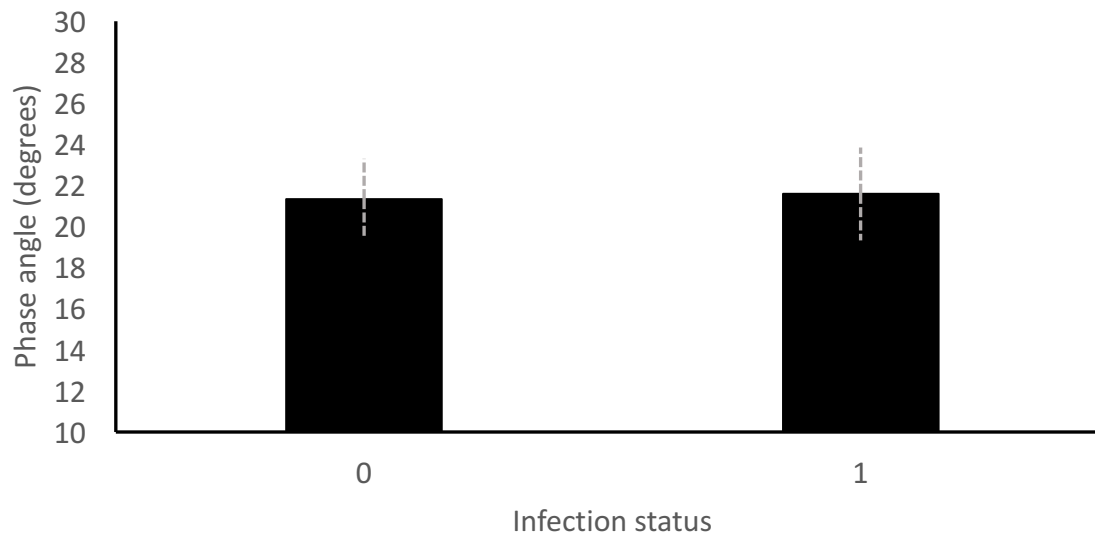


Results – *phase angle*

- GLM indicated culture was **not a significant predictor** of phase angle
- **No relationship** between Fulton's K and infection status either



Phase Angles of Infected vs. Non-infected P. Halibut

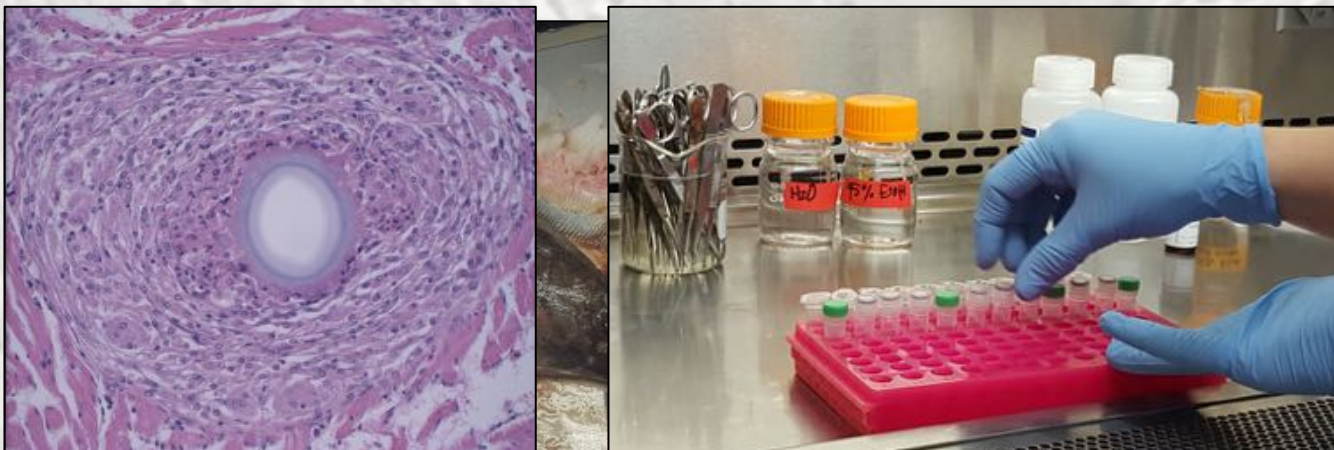


Conclusions

- Ichthyophonus prevalence ranged from 19-59%
- Highest levels in most recent years
- Ichthyophonus may cause subclinical infections in P. halibut

Next steps:

- ~~Additional body composition model~~



Acknowledgements

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Questions?

