A parasitic hyperiid amphipod acts as a trophic link between a large scyphozoan jellyfish and juvenile Chinook Salmon.

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MSc Candidate
University of Victoria
Acknowledgements

- Dr. Francis Juanes
- Will Duguid
- Moira Gilbraith, DFO
- Andy Lamb
- Donna Gibbs
• Jellyfish abundances are increasing regionally throughout the world’s oceans

• Local populations are stable but variable

Ecosystem Roles for Gelatinous Zooplankton

- Trophic Dead End
  - Consume resources making them unavailable to higher trophic levels
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Towanda, et al., 2007
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<th>Year</th>
<th>Frequency of Occurrence (% of Stomachs)</th>
<th>Sample Size (n)</th>
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<td>1976 (Argue et al., 1986)</td>
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**Phacellophora Abundance from Dive Surveys 1990-2015**

\[ R^2 = 0.3643, p<0.001 \]
1. Are Hyperia found in the gut contents of juvenile Chinook obtained from Phacellophora?
   • Look for evidence of jellyfish residence (nematocysts) in guts of Hyperia from Chinook.
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3. How long after leaving the medusa does evidence of Phacellophora remain in Hyperia?
   - Maintain Hyperia in the lab separate from the jellyfish to determine how long nematocysts remain in the gut
<table>
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<th>Observed in 84% of individuals</th>
<th>Found in stomach after 106 hrs.</th>
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<td>From Chinook Stomach</td>
<td>From <em>P. camtschatica</em></td>
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Length Distribution

Phacellophora Hyperia

Cephalothorax Length (mm)
Frequency
0 200 400 600 800 1000
      0−1     1−2     2−3  3−4  4−5 5−6 >6

Chinook Hyperia

Cephalothorax Length (mm)
Frequency
0 10 20 30 40
      0−1     1−2     2−3  3−4  4−5 5−6 >6

Cephalothorax Length (mm)

Phacellophora Hyperia

n = 2568

Chinook Hyperia

Cephalothorax Length (mm)

n = 70
Sex Ratios

From Phacellophora: 1.1:1

From Chinook: 10.7:1
Conclusions

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- Nematocysts remain in Hyperia stomachs for some time
Implications/Next Steps

• Positive?

...But need to know more about prey quality
Implications/Next Steps

• Positive?

• Bad news? Second class prey in quality limited environment

• Other Players (e.g. Hyperia, Hyperoche, Themisto, Primno (Beamish et al. 2016))
Questions?