

Parasite diversity and burden in relation to diet in a hermaphroditic fish (*Halichoeres semicinctus*)

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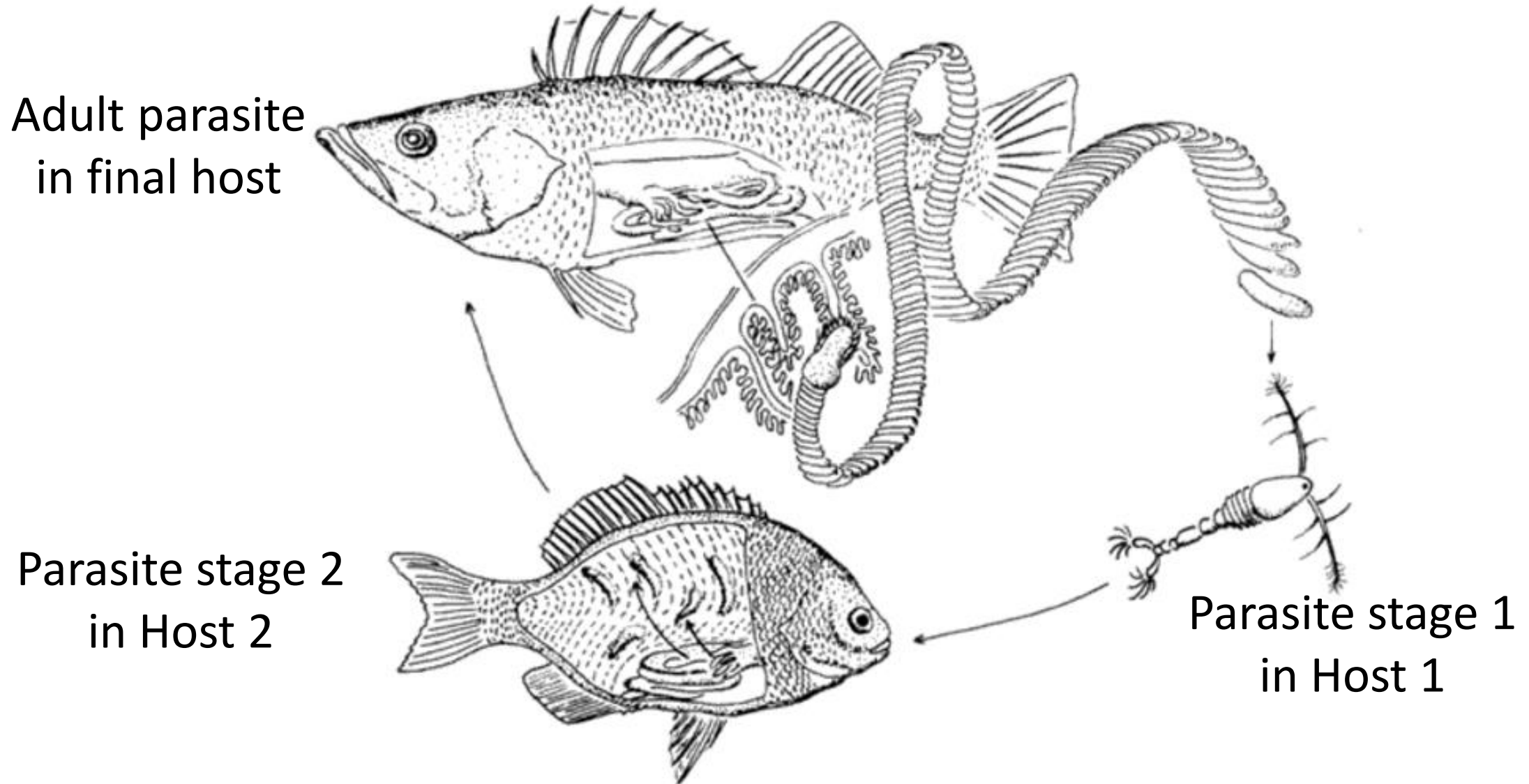
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UCSB EEMB

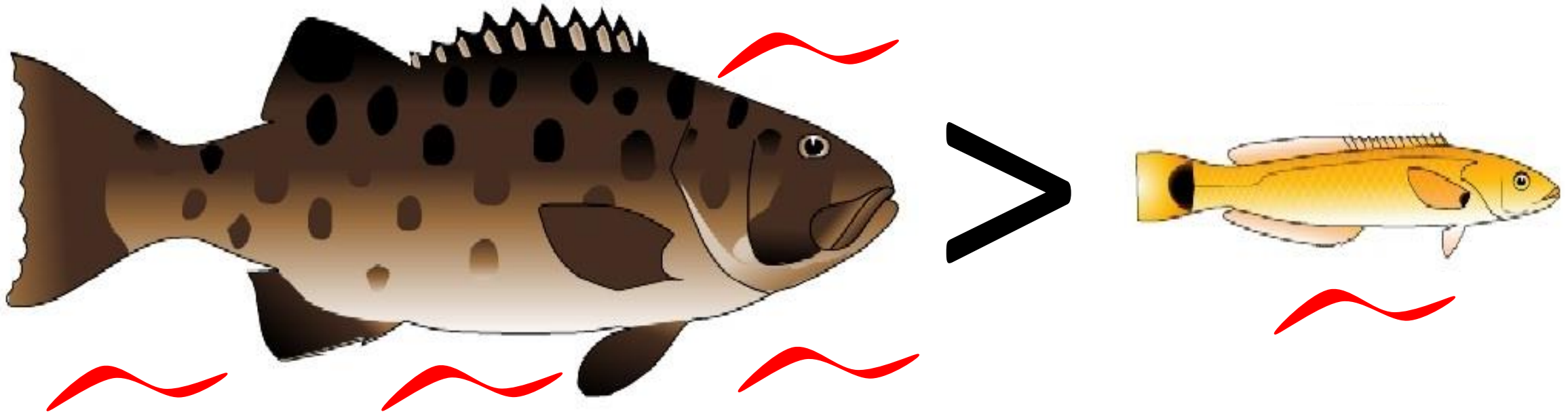


Parasites are transferred from prey to predator



Factors that affect parasite assemblages in fish

Size: larger fish have more parasites
(parasites accumulate over fish's lifetime)



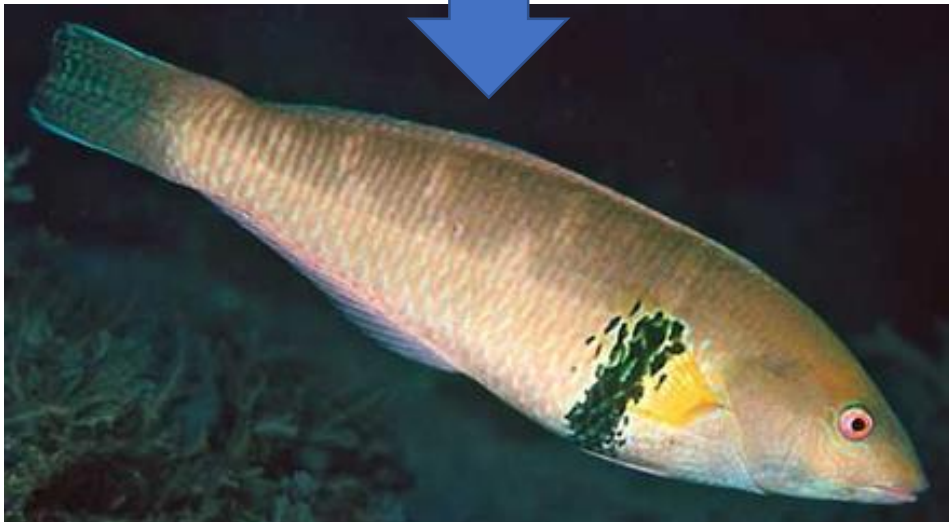
Trophic Level: fish higher on food chain
have more parasites

Halichoeres semicinctus, the rock wrasse



Female

Male



- Abundant in kelp forest
- Larger kelp forest project
- Little known about parasites
- Sex-change adds interesting factor

Does parasite assemblage differ between sexes?



Female



Male

Possibility 1:
There is no difference

Possibility 2:
There is a difference

What host features affect parasite assemblages?



Size:

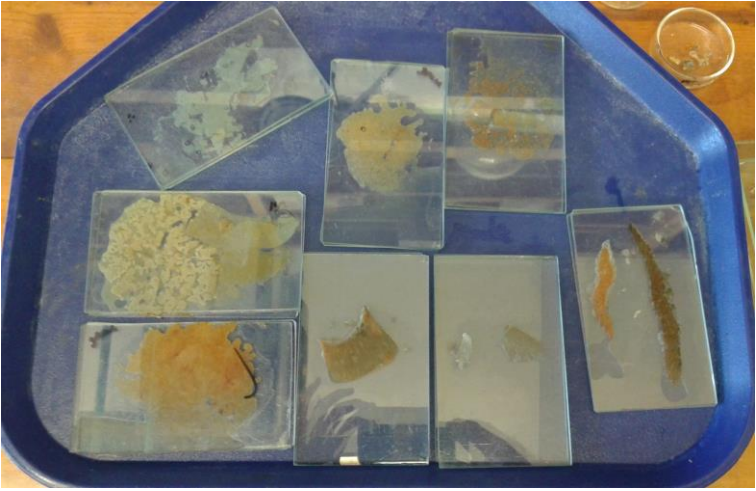
If a host is large, then it will have more parasites.



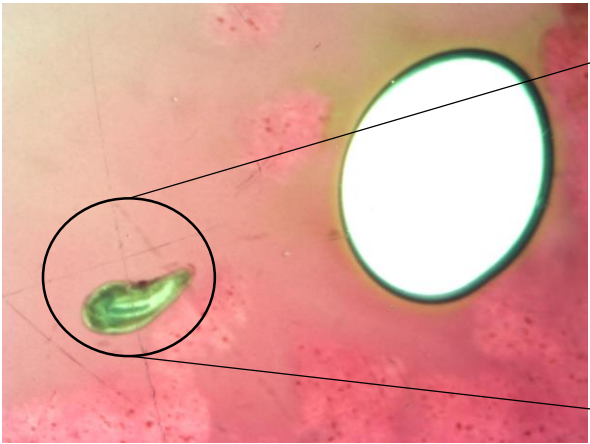
Diet:

If a host eats many prey items, then it will have more parasites.

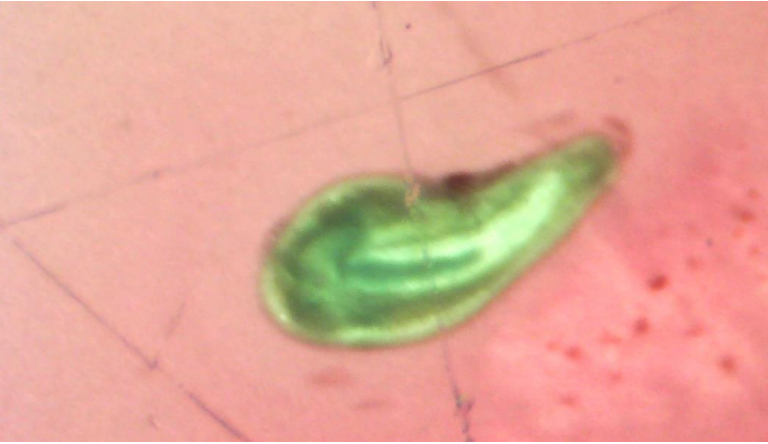
Methods: Identifying and counting parasites



Squash tissues

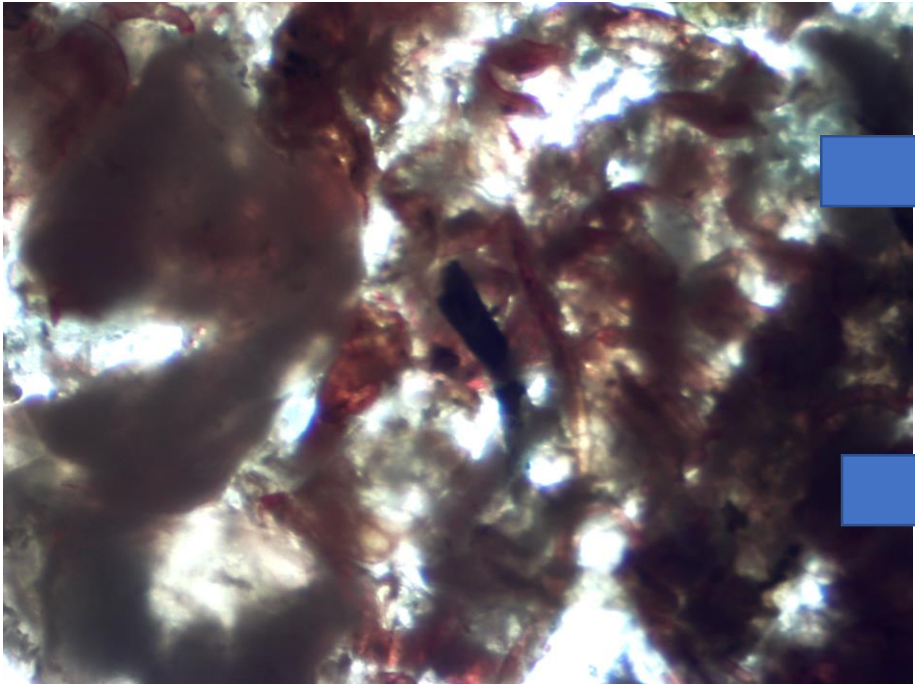


Find parasites

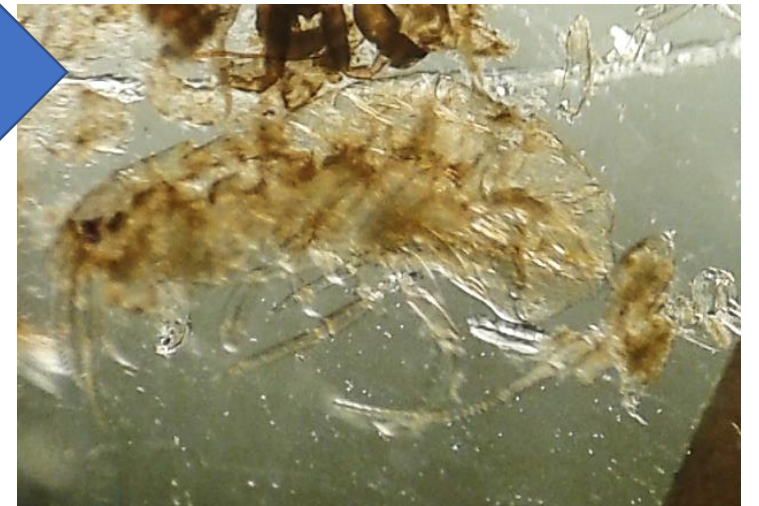


Identify parasites

Methods: Analyzing gut contents

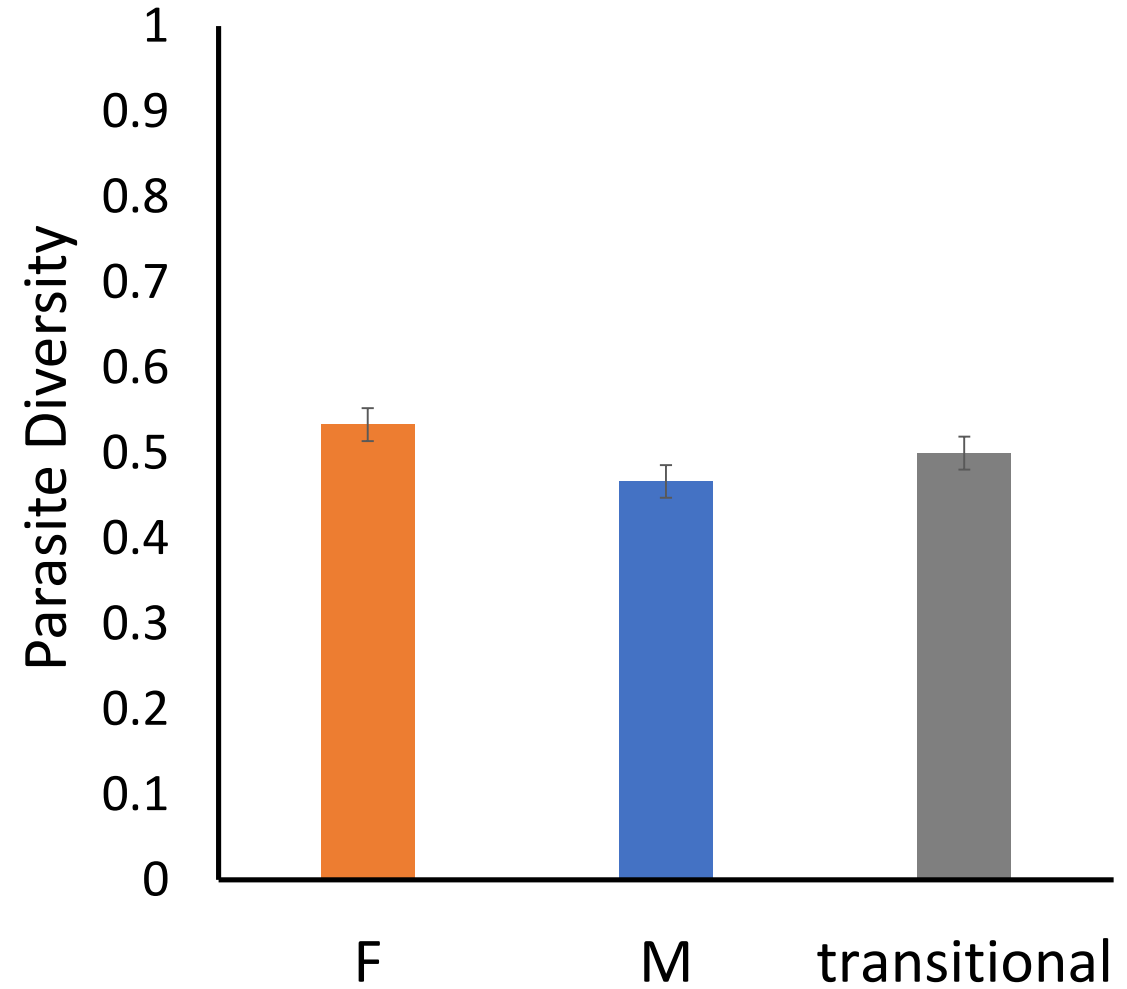
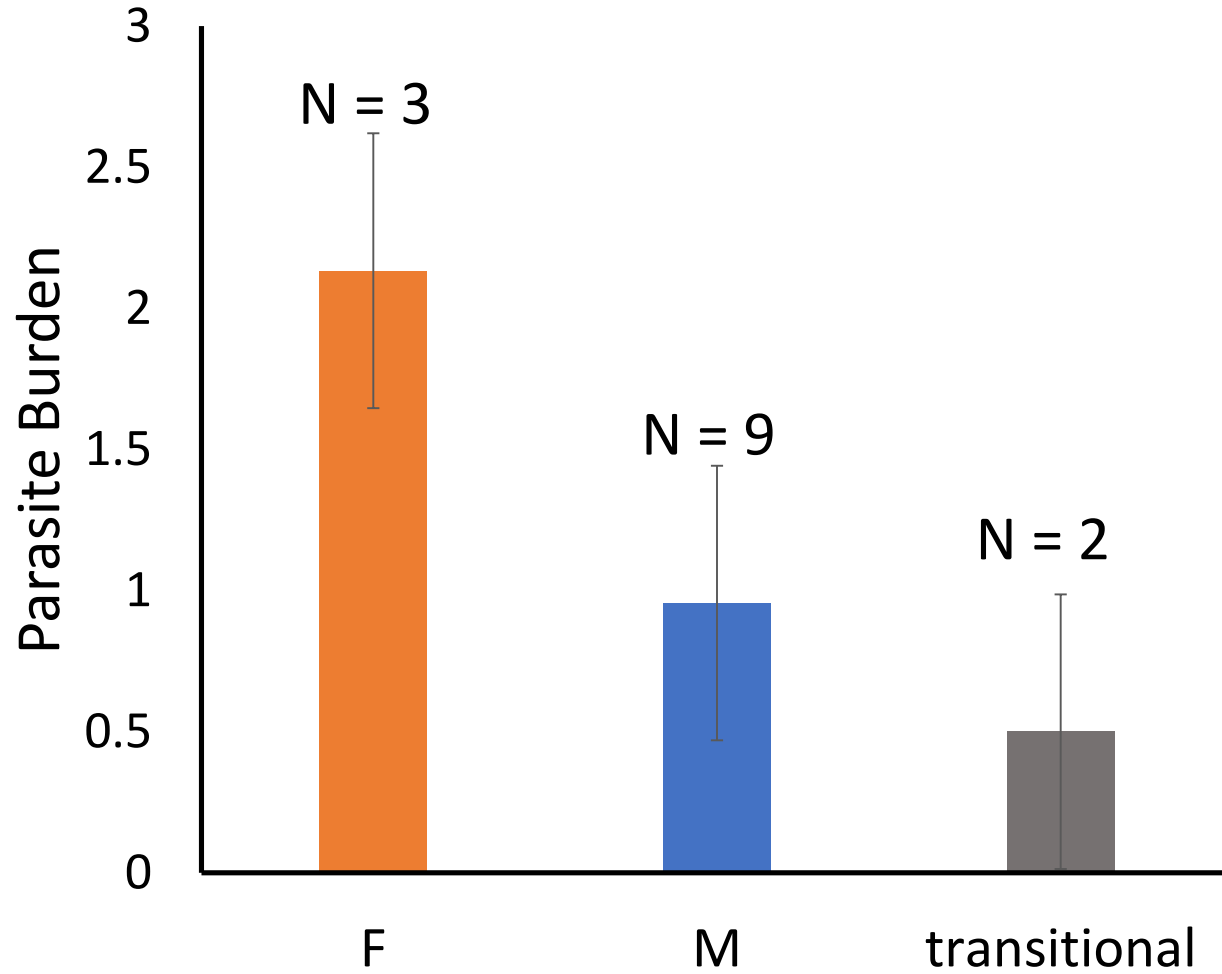


Sort gut contents

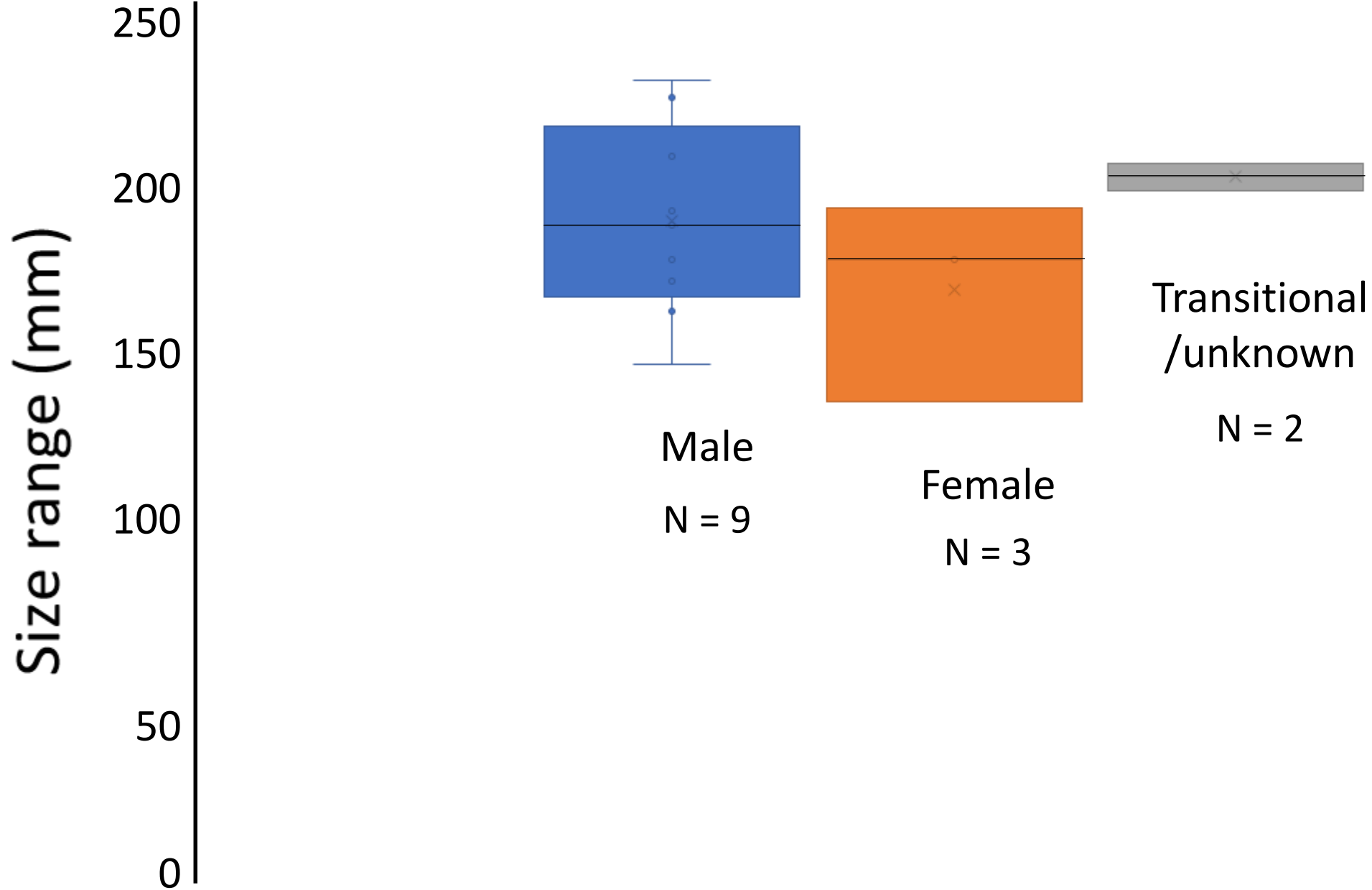


Gut contents are temporary; parasites accumulate

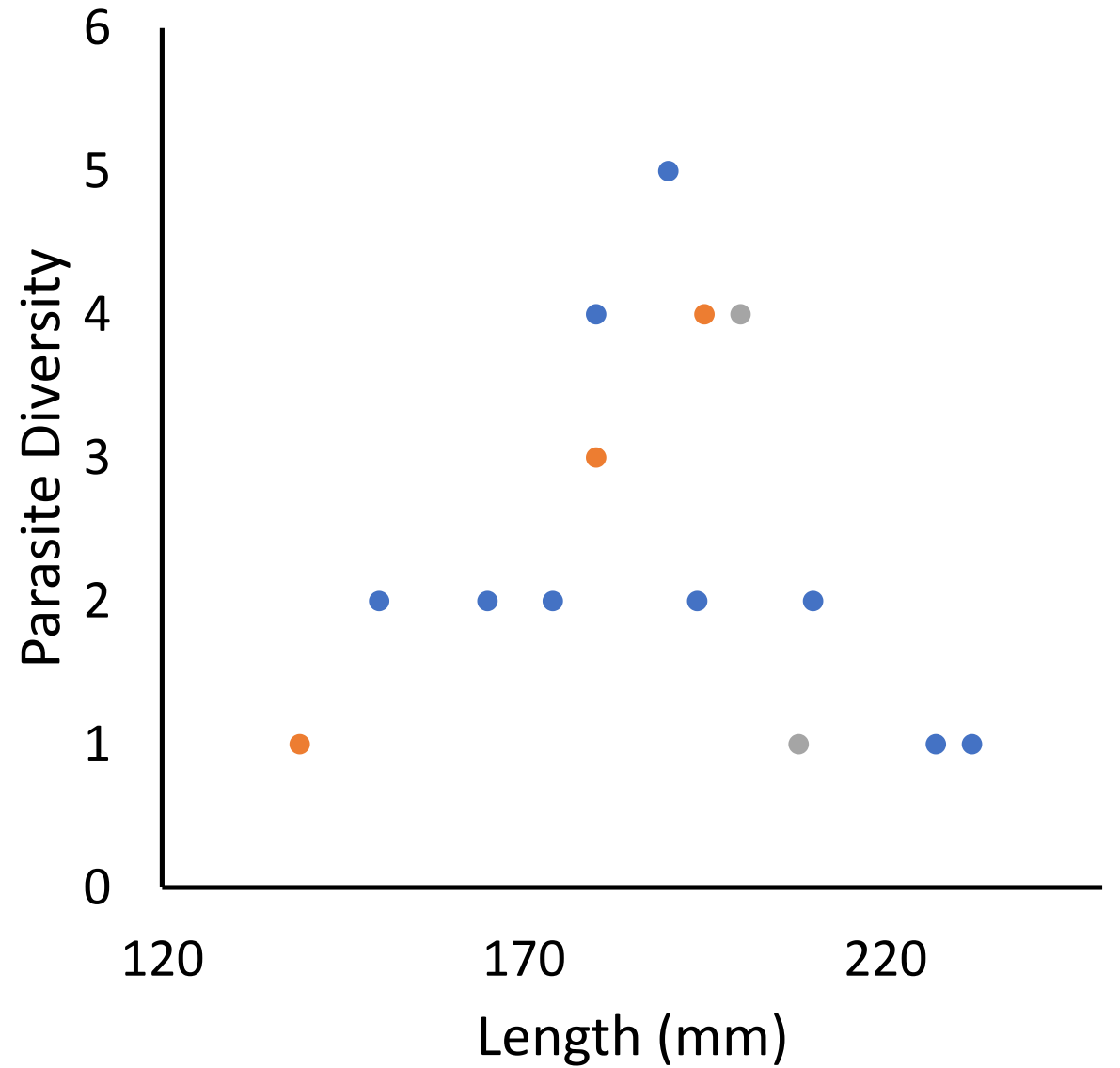
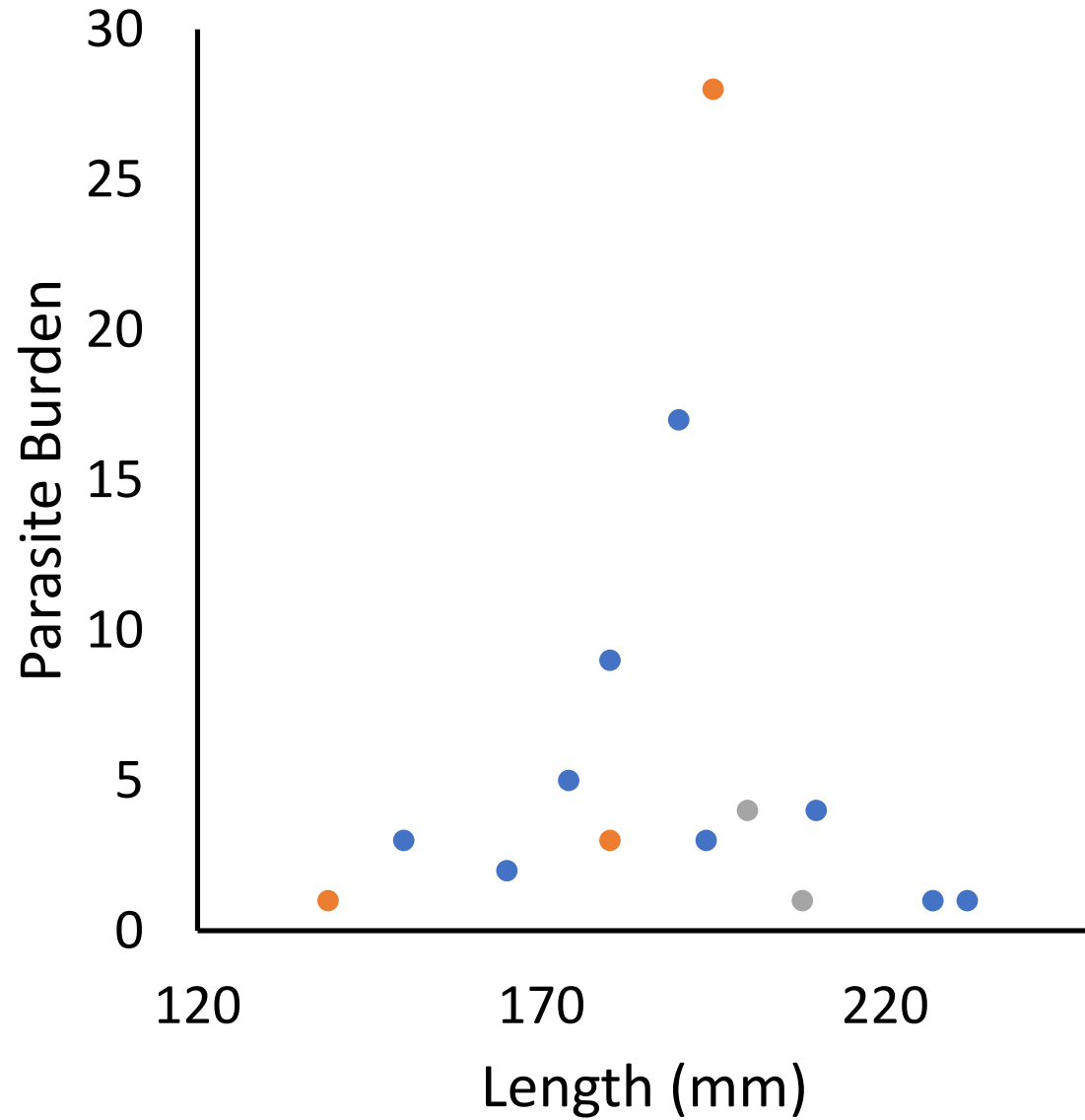
Is there a difference in parasite assemblage?



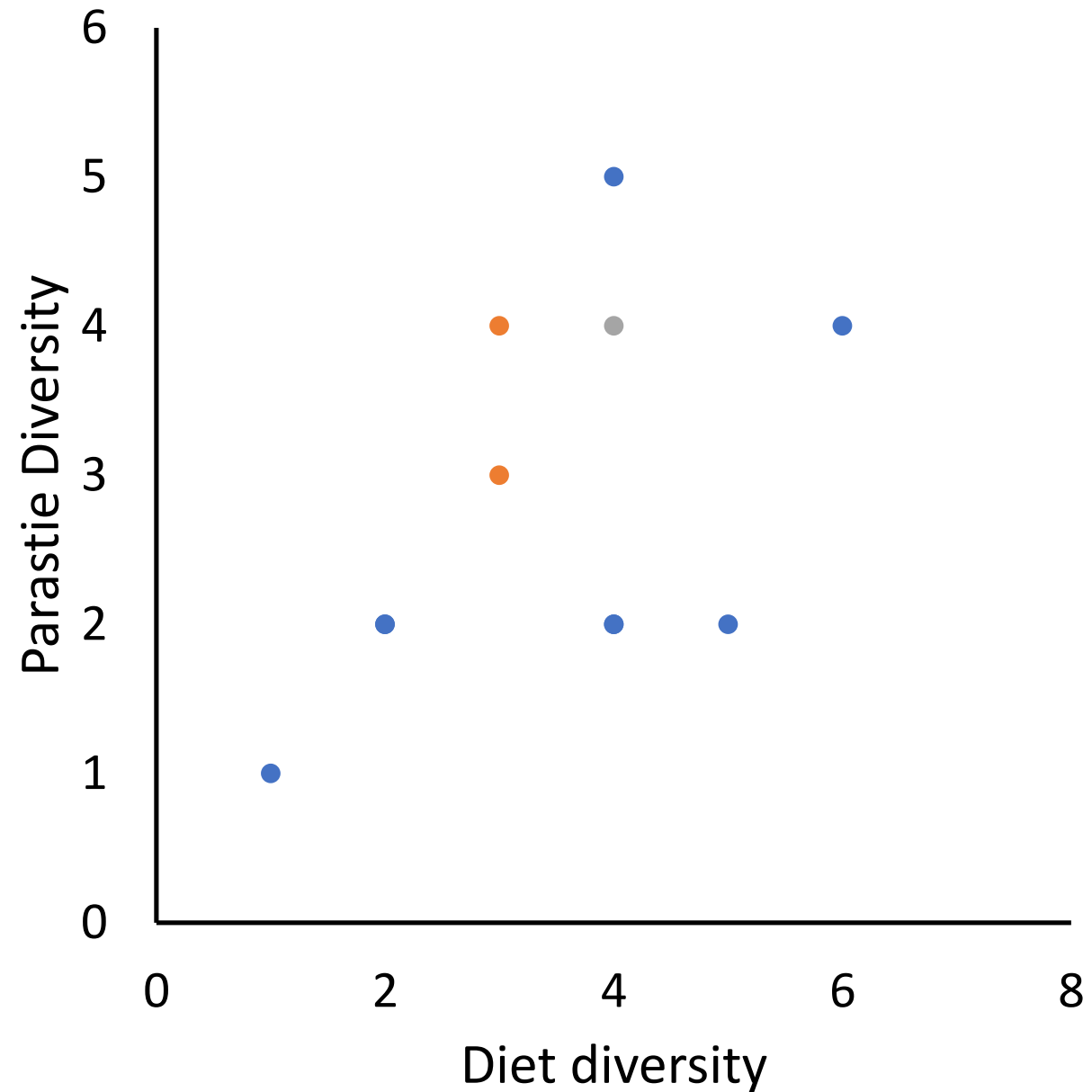
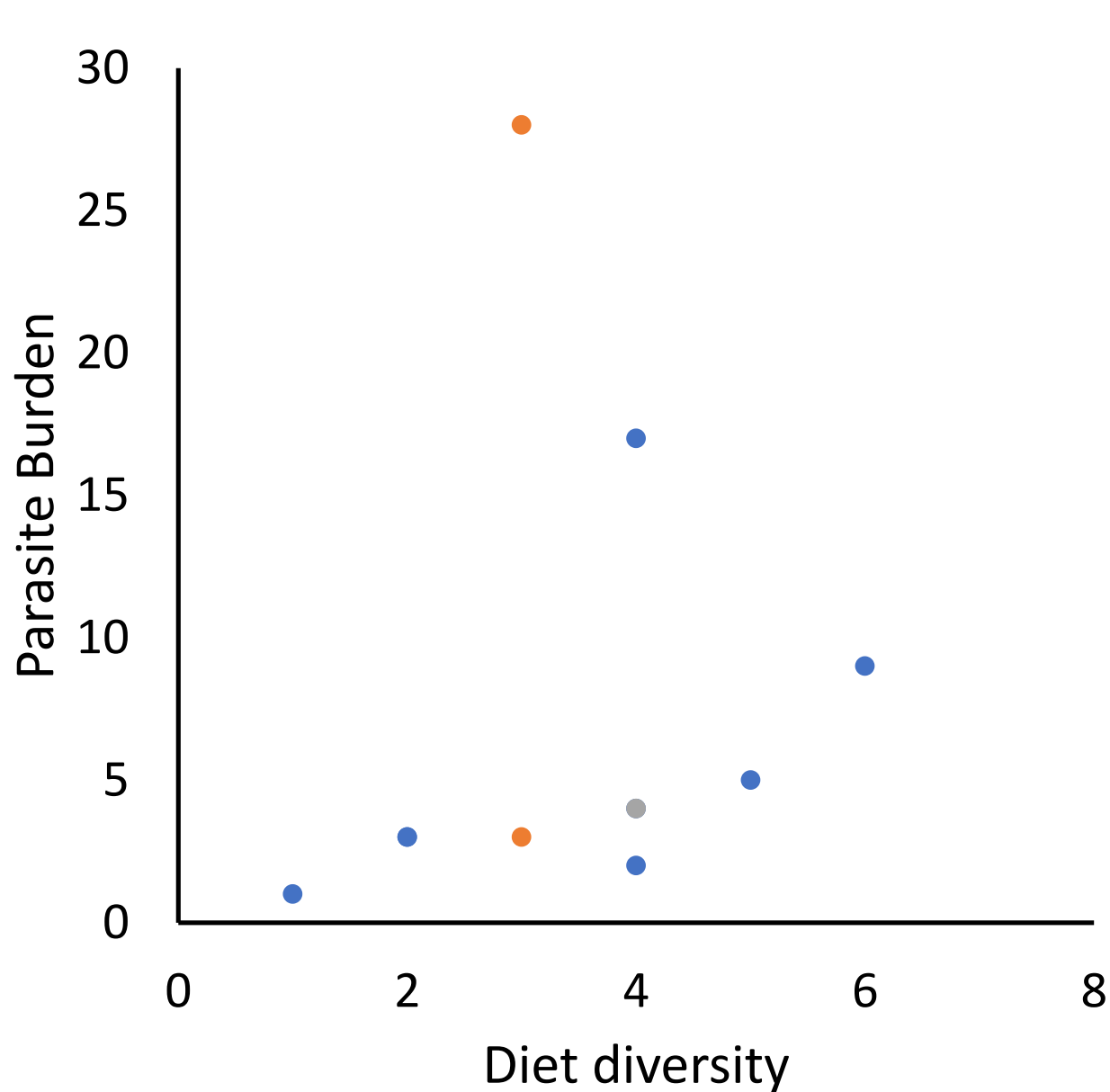
Is there a size difference between sexes?



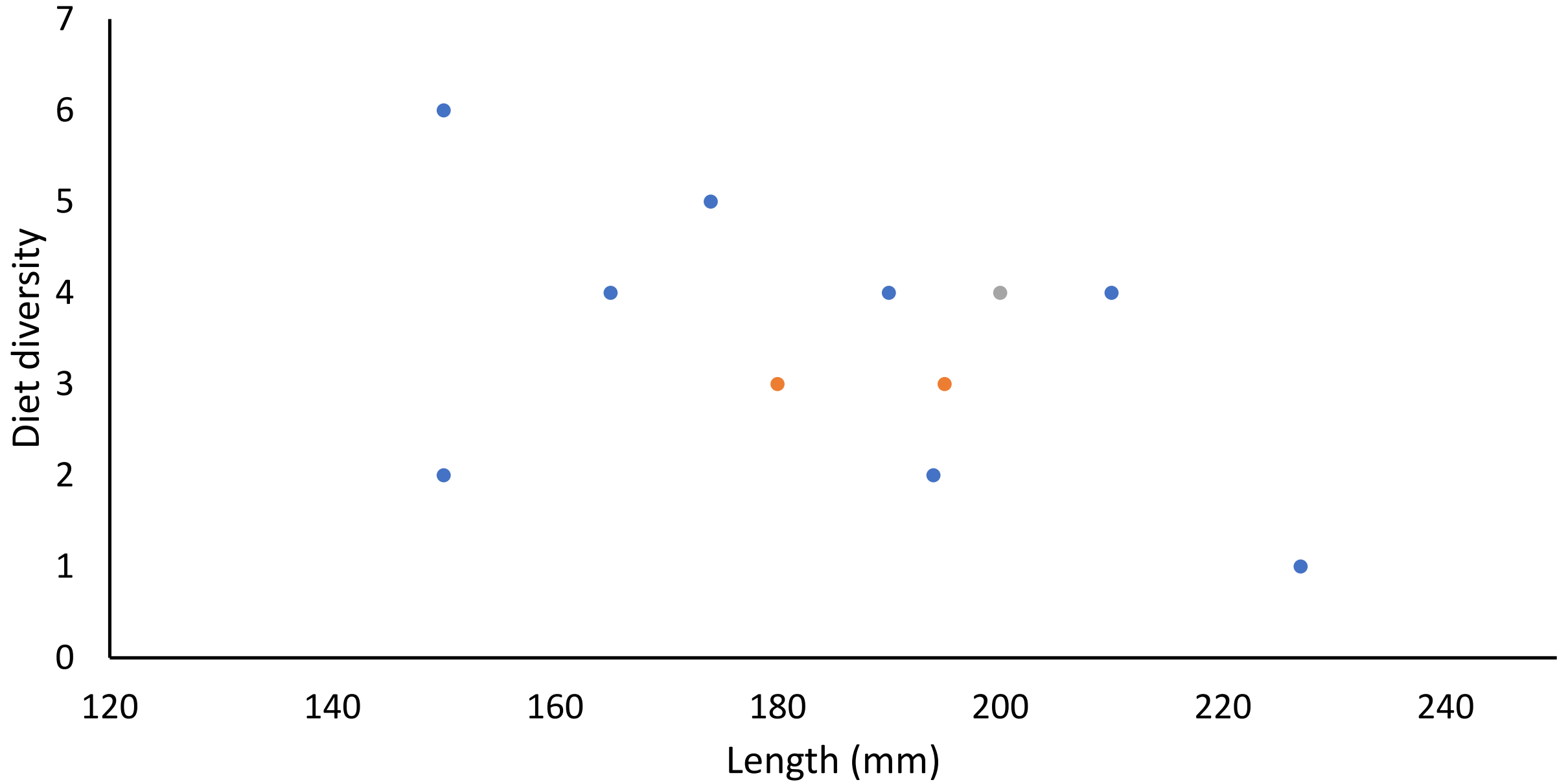
Size and Parasite assemblage



Diet diversity and Parasite assemblage



Size and Diet diversity



Does parasite assemblage differ between sexes?

1) Burden: yes, females had the highest burden



2) Diversity: no difference



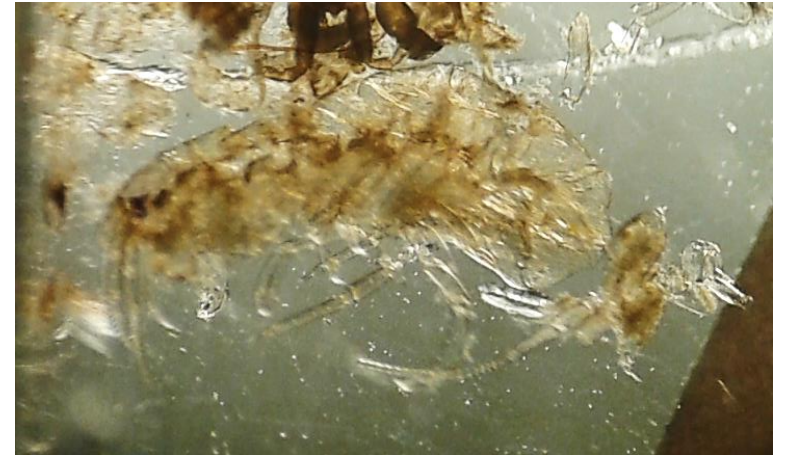
Why do females have a greater parasite burden?



Eating more =
exposing themselves
to more parasites

Energy to make eggs

Why isn't there a difference in parasite diversity?



Eating same species =
getting same parasites

What host features affect parasite assemblages?

Size

Mid-sized wrasses had highest burden and diversity

Diet

High diet diversity correlated with parasite diversity

Possible that size and diet are linked

How would size and diet affect parasite assemblages?

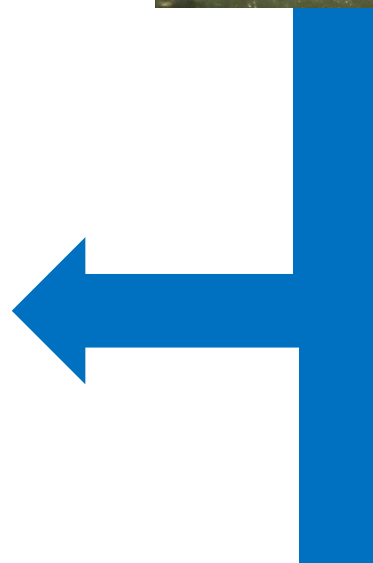
Small wrasses can only eat small prey



Large wrasses focus on single large prey



Mid-sized wrasse can eat both



Key Points



1) Females: highest parasite burden
Eat more → exposed to more parasites



Key Points



1) Females: highest parasite burden
Eat more → exposed to more parasites

2) High diet diversity: high parasite diversity
More types of prey → more types of parasites



3) Mid-sized wrasses: high parasite burden and diversity
Possibly, diverse diet → diverse parasites

Future work

Further investigate relationship between diet and parasite diversity



Expand research to other wrasse species



Thank You



Dana Morton



Dr. Armand Kuris



The EUREKA program

Sex vs. Diet diversity

