

Background

- Copepods are one of the most abundant organisms and play an integral role in aquatic ecosystems, primarily marine ecosystems
- Class Copepoda contains both free-living planktonic and parasitic species
- Understanding the host diversity of closely related species may help piece together the overall phylogeny and taxonomy
- Determining taxonomy allows us to create hypotheses in other disciplines



Methods

1. Sediment cores collected May 7, 2018 from the Istanbul strait
2. Cores fixed, sieved on mesh, preserved in ethanol with Rose Bengal
3. Organisms sorted from sediment under stereomicroscope
4. Specimens dehydrated via graded ethanol series
5. Specimens put in hexamethyldisilazane (HMDS) solution to remove ethanol
6. HMDS removed using a pipet and specimens left in desiccator to air dry
7. Specimens placed on aluminum platforms (SEM stubs) and sputter-coated with gold
8. Specimens examined with SEM and images taken
9. Host identified from identification keys

Identification of a New Polychaete-Parasitizing Copepod

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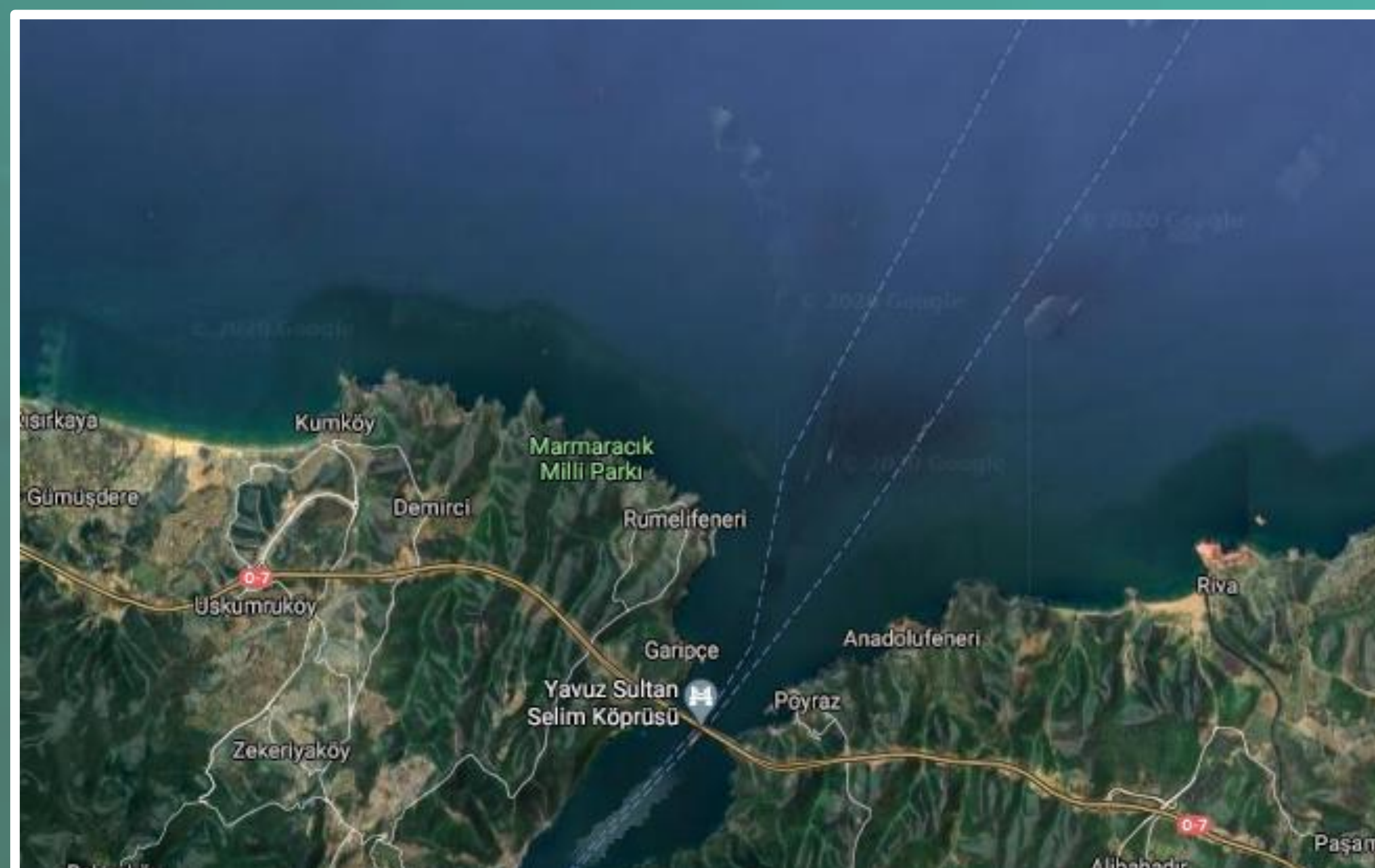
Objective

1. To determine the family of the host species
2. To determine if the parasite is new species

Hypothesis: The parasitic copepod specimen represents a novel species²

Prediction 1: The morphology of the parasite will be significantly different than previously described parasites of the host

Prediction 2: The morphology of the parasite will be significantly different than previously described species within its family



Results



- Based on the morphology of the host compared to polychaete families native to the Black Sea, the host is a member of family Capitellidae



- Copepod families known to parasitize capitellid polychaetes include cyclopoid families Clausiidae and Nereicolidae¹
- Parasite must be a member of one of these families
- Variation of cephalic appendages used to determine whether parasite is a new species of either family

Conclusion

- Based on the specimen's morphology and morphology of known clausiid and nereicolid species, the parasites observed on the capitellid host represent a previously undescribed species
- This discovery allows us to fill in gaps present in copepod phylogeny

References

- ¹Conradi, M., Bandera, M.E., Marin, I., and Martin, D. 2015. Deep-Sea Research II. **111**: 147-165.
- ²Kim, I-L., Sikorski, A., O'Reilly, M., and Boxshall, G.A. 2013. Zootaxa, **3651**: 1-62
- ³Murtey, M.D, and Ramasamy, P. 2016. Sample Preparation for Scanning Electron Microscopy—Life Sciences. *In: Modern Electron Microscopy in Physical and Life Sciences. Edited by: Milos Janecek and Robert Kral. InTech. pp. 161-186.*