Taxonomy of Scyphozoa and cubozoa, based on early stages of their life cycle

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Theory

- Introduction into the general morphology of early life stages and adult/mature medusae of Scyphozoa and Cubozoa
- Distinguishing species by morphological structures in early life stages (planulae, polyps, strobilae/metamorphosis, ephyrae/young medusae)
- The development of structures (e.g. gastric systems) of scypho ephyrae to adult medusae
- Taxonomy of Scyphozoa and Cubozoa based on early life cycle stages and their development to adult medusae

Practicals

- Observations of different types of polyps and their asexual types of propagation –in-live – drawing of polyps in all their stages, during feeding; histological sections of cubo polyps for inner structures, comparison to scypho sections in literature
- Observation of different types and/or stages of ephyrae – in-live - drawing of ephyrae in relaxed stage
- Observation of different types and/or stages of strobilae – in-live - drawing of strobilae in relaxed stage; histological sections of cubo metamorphosis, comparison of scypho sections in literature
- Dissection of different types of medusae; staining of gastric systems

Dr. Zafrir Kuplik:

Lectures

- Origin and systematics

- Jellyfish blooms
- Ecological aspects: Prey-predator interactions and impact on the environment
- Interactions with humans
- Using jellyfish; food, cosmetics, pharmaecuticals included
- Cultivation of jellyfish in aquaculture and research
- Jellyfish as invasive species. In this context an inovative theory related to the problems associated with determining if a species is actually invasive will be discussed

Mr. Michael Brown- Integrative taxonomy of jellyfish:

The study of biological phenomena has become increasingly computational. Indeed, many scientists have argued that the term computational biology is quickly becoming antiquated as all biology is becoming computational in nature. This line of thinking extends to integrative taxonomy. Species concepts are hypotheses that can be tested and good species concepts should be defined by congruent lines of testing. In leveraging computational tools like statistical testing (in R or PRIMER) as well as genetic information one is able to provide well validated findings on species identity and hypotheses.

- This section of the course will cover what a species concept or hypothesis is, the types of data we can use, how the practical collection of data and samples from gelatinous zooplankton works, data cleaning and coding, data analysis and interpretation of findings with regard to species concepts.