General recommendations for Crustacean Phylum

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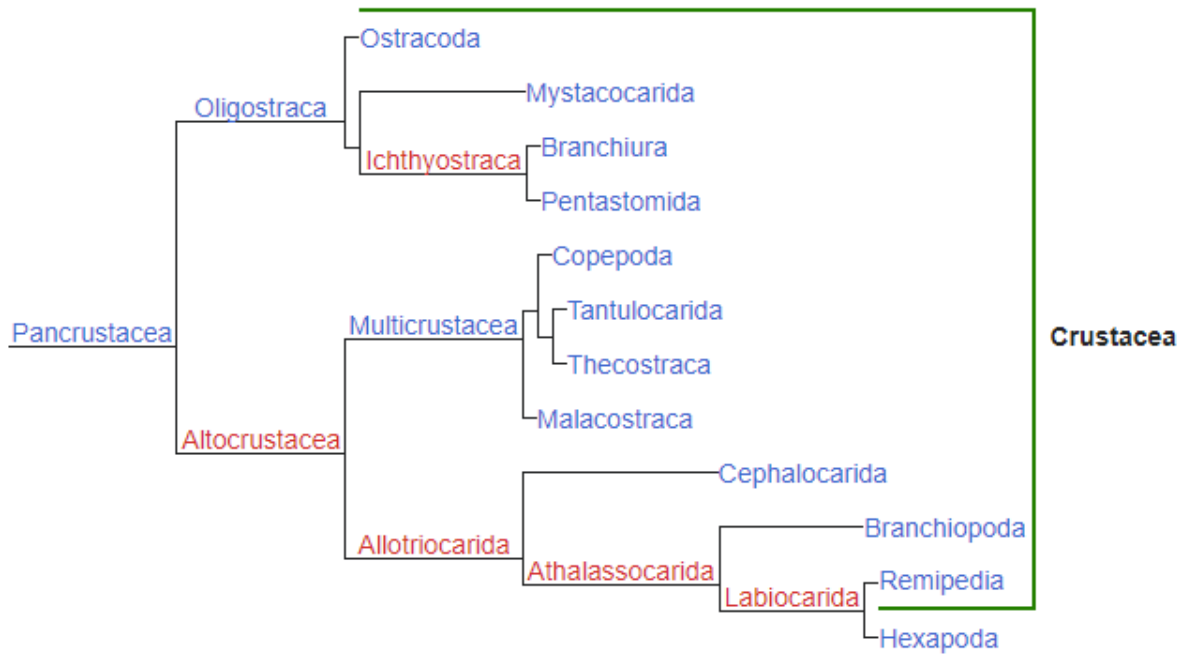
Crustaceans belong to the subphylum Crustacea, and form a large diverse group of **arthropods** including decapods, seed shrimp, branchiopods, fish lice, krill, remipedes, isopods, barnacles, copepods, amphipods and mantis shrimp. Most crustaceans are aquatic, living in either marine or freshwater environments, but a few groups have adapted to life on land, such as terrestrial crabs.

The **Decapoda** are an order of crustaceans within the class Malacostraca, including many familiar groups, such as crabs, lobsters, crayfish, shrimp, and prawns.

The superorder **Peracarida** is a large group of malacostracan crustaceans, having members in marine, freshwater, and terrestrial habitats. They are chiefly defined by the presence of a brood pouch, or marsupium, formed from thin flattened plates borne on the basalmost segments of the legs.

Cirripedia (barnacles) are a type of arthropod. They are exclusively marine, and tend to live in shallow and tidal waters, typically in erosive settings.



Guidelines

Sampling

After collection (manually, dredge/trawl, brushing, vacuum system), specimens are maintained in ambient seawater containers (if necessary with ice pines to increase the survival of organisms). At this step, specimens are identified with:

- sampling date
- sampling number
- station number
- name species / taxon
- "GENOME" label (to indicate that this specimen will follow the ATLASea cold chain).

Specimen from the dredging and brushing may be in poor condition. They should be processed quickly.

Photography

Ideally, images should be taken in the highest quality resolution (macro lens recommended) and where no voucher specimen parts are retained the pictures will serve as voucher and should include identifying features.
For the overall view, when it's possible, specimen can be photographed on the support, spreading all periopods and uropods, but it should be done quickly.
Otherwise, take the picture in a glass container with sea water.
Water should be clean and changed between each specimen.
If possible, discuss with the taxonomist to find out the important morphological elements to see, and therefore to photograph.

Decapoda
Photograph dorsal, lateral and ventral views. When it's possible.

Peracarida
Photograph dorsal, lateral and ventral views. When it's possible.

Cirripedia
Photograph the dorsal (top) view and up to five lateral (side) views for larger or stalked specimens. Ensure all plates are imaged of any live specimens attached to a substrate/host, either prior to collection or after. For unstalked species: do not remove from attachment site prior to photography as this will damage the plates.

One picture is taken with a **scale**, the **code identifier** (e.g. ATLASea QR code, **MNHN-IU** barcode) and the station label with the specimen.

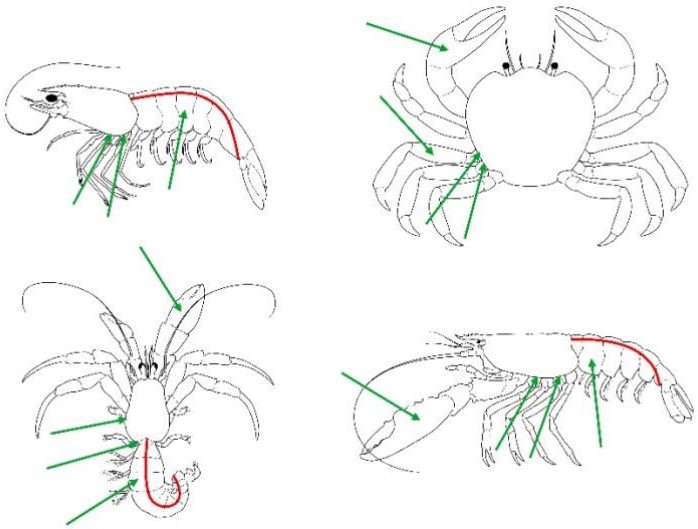
Animals can be anesthetized to facilitate the photo shoot, however in this case it must be processed immediately after the picture is finish.

Dissection for DNA barcoding and Genome Sequencing

All individuals must be anesthetized by :

- Cooling them (generally 30 min at -20°C, depending on the size of individuals.)
- Put some sparkling seawater in the containers.

1. Remove epibionts as much as possible (washing shells or specimen with toothbrush…).
2. Remove shell/carapace in a vice grip if necessary.
3. Collect “fleshy” parts when possible (avoiding shell, digestive contents…). For decapods, see Figure. Green arrows indicate the best part to collect tissues. Red line indicates the intestine, try to avoid it. After removing the carapace in crabs, shrimps, lobsters or hermit crabs, the “fleshy” parts are easily obtained.
    a. For crabs, select preferentially claws and breastplate section. For larger specimens, remove the flesh from the base of the legs (use the needle from the dissection kit).
    b. For hermit crabs, the animal can be gently extracted from its shell by carefully unwinding it after anaesthetizing it.
    c. For shrimps or lobsters, select the clamps/chelipeds, abdomen or base of legs.
    d. For other arthropods, prefer central segments of the animal.



4. Dissect at least **10 pieces** (approx. **300 mg** each). Before putting them in separate tubes (with unique identification labels), slice each piece into smaller fragments.
5. Ensure all tissues from the same individual are correctly identified on the log sheet. For small individuals, put one specimen per tube.
6. Weight the tubes and scan the barcode on the log sheet.
7. Tubes should be **flash-freeze** in a liquid nitrogen-charged dry shipper and stored in a -80°C freezer.

Backup/Biobanking:

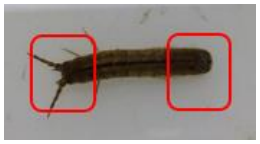
1. Dissect at least 1 and up to 10 pieces (approx. 200mg each) in separate tubes (with unique identification labels).
2. 10 tubes by specimen.
3. Tubes should be flash-freeze in a liquid nitrogen charged dry shipper and stored in a -80°C freezer.

Voucher & Taxonomic Assignation samples:

Voucher will be storage at MNHN.

1. Keep as vouchers :

a. For crabs, shrimps, lobsters : carapace preferently, exoskeleton, clamps and antennae
b. For hermit crabs: exoskeleton, telson, clamps and antennae
c. For other arthropods, a piece of the first segment (head or acron) and the last segment (telson) (or an individual)



d. In general, during dissection keep the specimen as intact as possible or as many parts of the exoskeleton as possible.
e. Or another individual from the same population and checked by a taxonomist as belonging to the same species.

2. Place the barcode **MNHN-IU** identifier and the station label with the specimen in tube.
3. Put 75-80% ethanol in the tube/container. There must be 10 times the volumes of specimen in alcohol.
4. Put the tube/container with the others specimens in the ATLASea barrels for shipment to the MNHN.