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Version 1

DToL Taxon-specific Standard Operating Procedures for Marine Metazoa V.1



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Kesella Scott-Somme¹, John Bishop¹, Chris Fletcher², Patrick Adkins¹, Nova Mieszkowska¹, Rebekka Uhl¹, Freja Azzopardi², Dominic Phillips², Inez Januszczyk²

¹Marine Biological Association; ²Natural History Museum

Darwin Tree of Life



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Natural History Museum, London

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Protocol status: Working

This is a working protocol that may be subject to changes in the future.

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Abstract

These Standard Operating Procedures (SOPs) contain guidance on how to process the various taxa that fall under the 'Marine Metazoa' category within the scope of the Darwin Tree of Life (DTOL) project. The guidance specifically refers to the tissue samples needed for DNA barcoding (which takes place at the Natural History Museum (NHM) and at the Marine Biological Association (MBA)) and outlines the dissected tissues required for whole genome sequencing, which takes place at the Wellcome Sanger Institute. Every specimen is submitted for DNA barcoding first before potentially being sent to the Wellcome Sanger Institute. These SOPs were assembled by sampling team members from the Other Metazoa Working Group for the Darwin Tree of Life project, with contributions from experts from the Natural History Museum and the Marine Biological Association.

Please see the Guidelines for more details on how to best use these SOPs, as well as for relevant contact information and acknowledgements.

The available SOPs are listed below. Please note more may be added in future:

- 1-** Anthozoa
- 2-** Bivalvia
- 3 -** Bryozoa
- 4 -** Chitons
- 5 -** Cephalopoda
- 6 -** Colonial Ascidiacea
- 7.1 -** Crustacea - Decapoda
- 7.2 -** Crustacea - Peracarida
- 7.3 -** Crustacea - Cirripedia
- 8 -** Echinodermata
- 9 -** Gastropoda
- 10 -** Medusozoa and Ctenophora
- 11 -** Polychaeta
- 12 -** Porifera
- 13 -** Pycnogonida
- 14 -** Sipuncula
- 15 -** Unitary Ascidiacea



Guidelines

Use: The taxon-specific dissection procedures are split according to taxonomic order. They outline how to dissect specimens for DNA barcoding, genome sequencing, and specimen vouchering when relevant. Different taxa often require different sampling, preparation, photography, storage techniques and processes.

When relevant, the set of instructions are accompanied by taxon-specific pictorial dissection guides.

Details for field collection type, photography, dissection, storage and voucher curation of broad taxon groups are provided.

Please see the Sanger Sample Submission SOP (link below) for general details on physical handling of specimens, including cold chain use, and collation of metadata for sample submission to Sanger. These details are not included in this set of SOPs.

This SOP will be reviewed on an ad hoc basis by the Other Metazoa Working Group to incorporate feedback from the community.

Raising issues: We are still developing best practice and elements of this SOP are subject to change. If you would like to share any advice, comments, techniques or lessons learned, please do not hesitate to email darwintreeoflife@nhm.ac.uk or inez.januszczak@nhm.ac.uk.

Please note these SOPs do not cover every marine Metazoa order, instead focusing on the most common groups within the British Isles and the ones most frequently encountered within the scope of the DToL project. More groups may be added in the future.

Links to SOPs relating to this document:

- Sanger [Sample Submission SOP v2.2](#)
- Sanger [Sample Metadata Recording SOP v2.0](#)
- NHM [DNA barcoding SOP v2.1](#)

Paper on DToL metadata collation:

Lawniczak, Mara KN, Robert P. Davey, Jeena Rajan, Lyndall L. Pereira-da-Conceicao, Estelle Kiliyas, Peter M. Hollingsworth, Ian Barnes et al. "Specimen and sample metadata standards for biodiversity genomics: a proposal from the darwin tree of life project." *Wellcome Open Research* 7, no. 187 (2022): 187.

<https://wellcomeopenresearch.org/articles/7-187>

Pictorial dissection guide graphics: Chris Fletcher (Natural History Museum (NHM)).

Photos: Chris Fletcher (NHM), John Bishop (Marine Biological Association (MBA)).

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Troubleshooting

Files

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Protocol



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1. Taxon Group: Anthozoa

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2. Taxon Group: Bivalvia

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3. Taxon Group: Bryozoa

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4. Taxon Group: Cephalopoda

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5. Taxon Group: Chitons

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6. Taxon Group: Colonial Ascidiacea

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7.1: Taxon Group: Crustacea - Decapoda

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7.2: Taxon Group: Crustacea - Peracarida

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7.3: Taxon Group: Crustacea - Cirripedia

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8. Taxon Group: Echinodermata

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9. Taxon Group: Gastropoda

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10. Taxon Groups: Medusozoa and Ctenophora

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11. Taxon Group: Polychaeta

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12. Taxon Group: Porifera

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13. Taxon Group: Pycnogonida

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14. Taxon Group: Sipuncula

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15. Taxon Group: Unitary Ascidiacea

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