DAIMON Toolbox Fact Sheets:

Methods to Study the Impact of Dumped Munitions on Marine Biota

Assessment category 3: Biological effects

Toolbox component: Biota sampling

Fact Sheet 3.4: Homogenisation of fish muscle and mussel gill tissues

Authors: Aino Ahvo, Kari Lehtonen and Raisa Turja, Finnish Environment Institute (SYKE)

What is it?

Homogenisation of the target tissue is required prior to the measurement of enzymatic biomarkers. Tissue and cells are broken mechanically in a buffer solution, the sample is centrifuged and the resulting supernatant is used in the assays.

How to do it?

***Species*:** A generic method for most species, including fish and mussels.

***Matrix*:** Fish muscle and mussel gill tissue.

***Equipment*:** Weighing balance (1 mg accuracy); homogenizer (e.g., Qiagen TissueLyser); centrifuge; basic laboratory equipment (2 ml eppendorf tubes, decanters). For details, see, e.g., Turja et al. (2014).

***Procedure*:** Tissues are homogenized in individual 2 ml eppendorf tubes in phosphate buffer 100 mM Na-PO_4, pH 7.0, containing 0.1% Triton-X100. The samples are then centrifuged for 20 min in 10,000 *g* and aliquots of the supernatant are taken in new tubes and stored immediately at -80°C.

References

Turja, R., Höher, N., Snoeijs, P., Baršienė, J., Butriavičienė, L., Kuznetsova, T., Kholodkevich, S.V., Devier, M.H., Budzinski, H., Lehtonen., K.K. 2014. A multibiomarker approach to the assessment of pollution impacts in two Baltic Sea coastal areas in Sweden using caged mussels (*Mytilus trossulus*). *Science of The Total Environment*. 473-474:398-409.