

## XVII - PROTOCOL FOR MONITORING MARINE LITTER ON A VOLUNTARY BASIS

### **Proposal for collecting data on litter during MEDITS trawl surveys**

Fabio Fiorentino, Evgenia Lefkaditou, Angelique Jadaud, Pier Luigi Carbonara, Giuseppe Lembo and Francois Galgani

This proposal is based on the document "Procédure pour l'observation des macro déchets au cours des campagnes halieutiques", version 1.0 (2012) prepared by Badts & Galgani (Ifremer). It was prepared taking into account the suggestions of Marine Litter Technical Recommendations for the Implementation of MSFD Requirement (Galgani et al., 2011), CEFAS protocol for the litter recording (ICES, 2012), as well as the results of a relevant study in the Tyrrhenian Sea (Serena et al., 2011).

**Aim:** This document concerns a protocol for data collection on macro litter in the framework of scientific fishery surveys. The procedure covers observations of macro-litter present in the catches of fishing gears used during fisheries surveys (trawl nets, drags, hand lines, etc.). The protocol does not concern observation of floating litter or non-fisheries surveys.

**Definition of marine litter:** In the framework of the directive for the Marine Strategy for the Good Environmental Status of the sea, marine litter consists of items that have been deliberately discarded, unintentionally lost or transported by winds and rivers into the sea and on beaches. It mainly consists of plastics, wood, metals, glass, rubber, clothing and paper. Land-based sources account for up to 80% of marine litter – these include tourism, sewage and illegal or poorly managed landfills. The main sea-based sources are shipping and fishing (EU, 2010).

**Abstract:** This protocol is aimed to standardize the procedure to collect data on litter caught during the MEDITS trawl surveys. Information on litter composition is recorded in terms of total weight of litter not yet separated into different categories and number and weight by litter categories. Thirty four (34) different typologies were identified including 9 main categories related to litter material and 25 sub-categories related to source and main litter findings. Litter data are reported in a specific form to be integrated with haul information included in TA files, in order to estimate a standardized index of total and by categories litter abundance per square kilometer, aiming to future recommendation depending on litter sources.

**Procedure to collect litter data:** On board the vessel, the litter collected is weighted as total and split into the categories and sub-categories as reported in the list below. It is mandatory to record or estimate total weight, regardless the categories and subcategories, and number of items for each main category: It is facultative to register weight by categories and number of items by sub-category. In case of large amount of litter in the catch, all big sized objects of litter must be recorded while a subsample could be analysed for small sized litter (e.g. lids). Litter should be coded as total, by category and sub-category. Detailed data on total weight and litter composition must be reported in the specific form on litter.

Qualitative and quantitative data on the litter have to be connected to data regarding the characteristics of the haul (Date, code of haul, the GPS positions of the haul (start and end), trawled distance, average speed, characteristics of the haul (horizontal opening), depth of haul etc.), contained in file TA.

Data related to the fishing set and gear performance allows calculating the sampled surfaces for each haul and estimating a standardized index of total and by categories litter abundance per square kilometer.

A photograph of total litter separated from fish catch in a haul, including a label with main haul data (Figure 1), is recommended as it might be used to future analysis of litter composition by Image Analysis Tools.

Organisms attached on litter might be also noted.

### **The list of the litter typology and codes :**

#### **L1 Plastic (including PVC, polypropylene, polyethylene)**

- L1a. Bags
- L1b. Bottles
- L1c. Food wrappers
- L1d. Sheets (table-cover, etc.)
- L1e. Hard plastic objects (crates, containers, tubes, ash-trays, lids, etc.)
- L1f. Fishing nets
- L1g. Fishing lines
- L1h. Other fishing related (pots, floats, etc.)
- L1i. Synthetic ropes/strapping bands

#### **L2 Ruber**

- L2a. Tyres
- L2b. Other (gloves, floats, boots/shoes, olskins, sanitarities)

#### **L3 Metal**

- L3a. Beverage cans
- L3b. Other food cans/wrappers
- L3c. Middle size containers (of paint, oil, chemicals)
- L3d. Large metallic objects (barrels, pieces of machinery, electric appliances)
- L3e. Cables
- L3f. Fishing related (hooks, spears, etc.)

#### **L4 Glass / Ceramic**

- L4a. Bottles
- L4b. Pieces of glass
- L4c. Ceramic jars
- L4d. Large objects (ceramic basins, etc.)

#### **L5 Cloth (textil) / Natural fibres**

- L5a. Clothing (clothes, shoes, etc.)
- L5b. Large pieces (carpets, mattresses, etc.)
- L5c. Natural ropes
- L5d. Sanitarities (diapers, cotton buds, etc.)

#### **L6 Wood processed (palettes, crates, etc.)**

#### **L7 Paper and cardboard**

#### **L8 Other**

#### **L9 Unspecified**

### **References**

Badts V., & F. Galgani, 2012. Procédure pour l'observation des macro déchets au cours des campagnes halieutiques", version 1.0 (2012) (Ifremer).

European Union, 2010. Marine Litter: Time To Clean Up Our Act.

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ICES. 2012. Manual for the International Bottom Trawl Surveys. Series of ICES Survey Protocols. SISP 1-IBTS VIII. 68 pp.

Galgani F., G.Hanke, S. Werner & H. Piha, 2011. Marine Litter Technical Recommendations for the Implementation of MSFD Requirement. MSFD GES Technical Subgroup Marine Litter. JRC Scientific and Technical Reports. EUR 25009 EN. ISSN 1831-9424. DOI 10.2788/92438 : 93 pp.

Serena F., A.J Abella., R.T.Baino, E. Cecchi, M. Ria , R. Silvestri & A. Voliani, 2011. Anthropogenic waste in the Marine Ecosystem. Biol. Mar. Mediterr. 18 (1): 161-164



Figure 1. Litter collected during a MEDITS haul in Argosaronikos Gulf (Aegean Sea).

Campaign:  Date :  Haul :

**TOTAL** weight of litter in the haul (kg) :

| Type of Litter                                    |  | Weight (kg)<br>(facultative) | Number<br>(facultative) | Number<br>(mandatory) |
|---|--|------------------------------|-------------------------|-----------------------|
| <b>L1</b><br>Plastic                              | <b>a.</b> Bags   |                              |                         |                       |
|   | <b>b.</b> Bottles  |                              |                         |                       |
|   | <b>c.</b> Food wrappers  |                              |                         |                       |
|   | <b>d.</b> Sheets (table covers, e.t.c.)  |                              |                         |                       |
|   | <b>e.</b> Hard plastic objects (crates, containers, tubes, ash-trays, lids, etc.) (specify)    |                              |                         |                       |
|   | <b>f.</b> Fishing nets   |                              |                         |                       |
|   | <b>g.</b> Fishing lines  |                              |                         |                       |
|   | <b>h.</b> Other fishing related (pots, floats, etc.) (specify)                                 |                              |                         |                       |
|   | <b>i.</b> Ropes/strapping bands  |                              |                         |                       |
| <b>L2</b><br>Rubber                               | <b>a.</b> Tyres  |                              |                         |                       |
|   | <b>b.</b> Other (gloves, boots/shoes, olskins etc.) (specify)                                  |                              |                         |                       |
| <b>L3</b> Metal                                   | <b>a.</b> Beverage cans  |                              |                         |                       |
|   | <b>b.</b> Other food cans/wrappers   |                              |                         |                       |
|   | <b>c.</b> Middle size containers (of paint, oil, chemicals)                                    |                              |                         |                       |
|   | <b>d.</b> Large metallic objects (barrels, pieces of machinery, electric appliances) (specify) |                              |                         |                       |
|   | <b>e.</b> Cables   |                              |                         |                       |
|   | <b>f.</b> Fishing related (hooks, spears, etc.) (specify)                                      |                              |                         |                       |
| <b>L4</b><br>Glass /<br>Ceramic                   | <b>a.</b> Bottles  |                              |                         |                       |
|   | <b>b.</b> Pieces of glass  |                              |                         |                       |
|   | <b>c.</b> Ceramic jars   |                              |                         |                       |
|   | <b>d.</b> Large objects (specify)  |                              |                         |                       |
| <b>L5</b> Cloth<br>(textil)/<br>natural<br>fibres | <b>a.</b> Clothing (clothes, shoes)  |                              |                         |                       |
|   | <b>b.</b> Large pieces (carpets, mattresses, etc) (specify)                                    |                              |                         |                       |
|   | <b>c.</b> Natural ropes  |                              |                         |                       |
|   | <b>d.</b> Sanitaries (diapers, cotton buds, etc.)  |                              |                         |                       |
| <b>L6</b> Wood processed (palettes, crates, etc.) |  |                              |                         |                       |
| <b>L7</b> Paper and cardboard                     |  |                              |                         |                       |
| <b>L8</b> Other (specify)                         |  |                              |                         |                       |
| <b>L9</b> Unspecified                             |  |                              |                         |                       |

Responsible:

Remarks :