LIFE+ INHABIT project (LIFE 08 ENV/IT/413)

1st INHABIT International Workshop on Rivers

'THE IMPORTANCE OF HABITAT FEATURES AND LOCAL HYDRO-MORPHOLOGY FOR THE DEFINITION OF ECOLOGICAL STATUS IN MEDITERRANEAN RIVERS'

Hosted by Universitat de Barcelona

Aula 35 (Aulario, in front of Margalef building)

Barcelona (Spain), October 17th 2012

The INHABIT project (*www.life-inhabit.it*) aims mainly at integrating information on local hydro-morphological features into practical measures to improve the reliability of implementation of WFD River Basin Management Plans (RBMPs) in South Europe. The new approach involved in the project is based on hydro-morphological and habitat-mediated information. The principal outcomes will contribute to reduce relevant problems in the subjects of WFD implementation and ecological status classification such as: i) the uncertainty in the assessment of ecological status due to ***habitat variability***, ii) the strong delay in ***WFD*** implementation in vast part of ***South Europe*** due in particular to extreme differences in environmental features among similar areas, iii) the difficulty in the implementation of other more traditional measures whose costs can limit their adoption and iiii) the risk of failing in the achievement of good ***ecological status*** by 2015. The focus is on rivers and lakes investigated in two areas in Italy covering a wide range of environmental features and water body types. More specifically the objectives of the project are:

- to quantify in a standard way the natural variability in undisturbed conditions of selected hydro-morphological, habitat and physico-chemical features known to be highly influent on biological communities. To quantify such features that can noticeably affect ecological status classification in both reference and altered sites;
- the following aspects will be considered to be directly brought into management plans: a) the influence of discharge-related habitat features on the evaluation of ecological status of rivers; c) the interaction between hydro-morphological and habitat features and nutrients concentration (and e.g. removal) as a mean to improve quality of rivers;
- to evaluate how such aspects can altogether influence ecological status assessment and the overall uncertainty in classification, i.e. as deriving from natural variability, errors in measurements, failure in methodological approach, direct influence of hydro-morphology and habitat, will be assessed for the study catchments.

Aims of the workshop

The workshop is addressed to a relatively small number of participants (15-20 people) including mainly scientists, water managers and representatives from Environmental Agencies. The idea is to discuss topics related to habitat and hydromorphology assessment under the particular focus of habitat-biota relationships (INHABIT approach) and potential nutrient retention. The main aims of the workshop are:

- to disseminate INHABIT project approaches and methodologies and first results obtained;
- to discuss about the needs for integrating habitat information when setting assessement systems for the evaluation of ecological status in Mediterranean rivers: e.g. typology refinements needed?
- to discuss the importance of linking hydromorphological/habitat and hydrology to biological communities (BQEs) when characterizing the ecological status *sensu* WFD. Such aspects are especially relevant in Mediterranean streams inherently exposed to high natural variability (e.g. spatial heterogeneity, climate, hydrology and droughts);
- to finally focus on the possibility of using habitat information when classifying ecological status – data and examples from aquatic invertebrates.

As well, further goals refer to:

- present results gained in the INHABIT project in relation to nutrient retention and habitat parameters;
- evaluate INHABIT project results applicability at a wider geographical scale (i.e. South Europe);
- briefly discuss additional items and problems of national/international interest especially relevant for South European river management (flow unpredictability of Mediterranean rivers, river typology in Med area, RBMPs *sensu* WFD, etc.);

Finally, some discussion will presumably be devoted to the need for integrating the 'actual water level' (i.e. the observed situation when sampling) with the 'hydrological history' (i.e. what happened in a relevant period before). On this regard, some focus may be placed on the proposal by Gallart et al. (2012) of 'Aquatic states' (outcome of the MIRAGE project).

Workshop Programme

10.45 – 11.00 Welcome and general introduction (N. Prat, UB)

11.00 – 12.30 Session 1 INHABIT: 'Habitat, benthic invertebrates and Ecological Status'.

- The INHABIT project: brief overview (A. Buffagni, CNR-IRSA) – ca 15'
- CARAVAGGIO, habitat information, methods and environmental gradients investigated (S. Erba, CNR-IRSA) – ca 20'
- Habitat control on Ecological Status: the example of the lentic-lotic character in Sardinian streams (A. Buffagni, CNR-IRSA) – ca 25'
- Discussion – ca 30'

12.30 – 13.15 Session 2: 'Overview of MIRAGE results, as a bridge to the INHABIT approach and activities'.

- Linking hydrology and ecology in the study of intermittent streams: main results from the MIRAGE project (N. Prat, UB) – ca 15'
- Characterising and classifying the regimes of temporary streams using qualitative hydrological states (F. Gallart, CSIC) – ca 15'
- Discussion– ca 15'

13.15 – 14.30 Lunch

14.30 – 15.15 Session 3: 'Hydro-morphology, habitat and in-stream nutrient retention'.

- INHABIT results: Nutrient retention, habitat and hydro-morphological river features (R. Balestrini, CNR-IRSA) – ca 15'
- Resazurin, a hydrometabolic tracer to understand the hydro-morphological control of in-stream nutrient uptake (Eugenia Martì, Consejo Superior de Investigaciones Cient¡ficas) – ca 15'
- Discussion – ca 15'

15.15 – 16.00 Session 4: 'Habitat, hydro-morphology, 'water quantity' and biological communities'.

- Modelling hydrological, morphological and water physico-chemistry characteristics of river networks to explain biological community patterns, with links to the Habitats Directive, in the Cantabrian region (J. Barquim, Uni Cantabria) – ca 15'
- Implementing environmental flows in Catalan rivers - Cost analysis and impact on use (A. Munné, ACA) – ca 15'
- Discussion – ca 15'

16.00-17.00 Session 5: General discussion and workshop conclusions.