

To: Erna, Branko and Dalibor

**Observations and required tasks in preparation of  
Workshop 1 - 2 June 2009**

WFD implementation: *Pressures & impact analysis, typology & delineation of water bodies*

*22<sup>nd</sup> May 2009*

**1. Summary of work plan from 17 April 2009**

- I. Focus on the "planning and overview capacities" of the Adriatic Basin Authority to ensure high quality ToR for the outsourcing of the establishment of the reference conditions and the pressures and impacts analysis
- II. Preliminary water body delineation to be carried out by the agency by 15 May (1<sup>st</sup> step – three GIS layers; 2<sup>nd</sup> step merge layers and numbering)
- III. Reference sites (no specific work instructions beyond general approach)
- IV. Pressures and impacts by 15 May
  - Scoping exercise to be done jointly based on data and expert information provided
  - Prepare three pilot exercises to complete pressures and impacts analysis for hydropower, urban waste water and drinking water abstraction

**2. Feedback since April workshop**

Request from 14 May to provide a presentation of tested methods to decide reference conditions and risk management when monitoring data are missing

Information on pressures and impacts from 14 and 21 May

- Chemical:
  - Waste water discharges judged as significant pressure for Neretva (BOD and nutrients)
  - Urban waste water amounts for RS [unclear treatment levels]
  - Data on sewage and industrial pollution in Neretva [unclear what they mean]
  - Chemical monitoring data for main physico-chemical, priority substances, microbiological and parameters

- Hydrology
  - Abstractions for public water supply for RS
  - Abstractions for irrigation in Neretva Basin
  - Hydropower in Neretva Basin (generation capacity and output, Nr of plants)
  - Annual run-off generation for RS [those seem to be not plausible]
  - Groundwater flows for RS
- Morphology
  - Flooding and flood control areas for RS [unclear what they mean]
  - Drainage area and systems for RS

### 3. Observations

So far feedback is rather limited, but confirms the impressions from the field visit in April that waste water discharges and hydropower are significant pressures. In case of waste water the monitoring data clearly confirm that this represents a significant impact causing high level of coli bacteria contamination (beyond safe bathing water standards), phenol concentrations above EQS (source of phenols to be checked) and saprobic index out of normal range associated with the Neretva.

In case of hydropower no data have been made available demonstrating a significant impact on hydrology or morphology. The data on flooding and drainage areas is difficult to interpret.

The data on abstractions is inconclusive on whether they present a significant impact or not. The relevant hydrological data have not been made available so far.

### 4. Next steps and workshop preparation

Agency to prepare a presentation of state of play of establishing a typology (and preliminary water body delineation if ready)

Agency to prepare a presentation on the existing monitoring network and gaps

Stefan to prepare a presentation on methods for establishing reference conditions and a risk based monitoring strategy

In order to test the assumption that hydropower and water abstractions are a significant pressure and to decide whether to carry out the pilot exercise, the Agency should provide more information by 29<sup>th</sup> of May, including:

- Location of the hydropower stations and description of their main impacts including mitigation measures, if any.
- Hydrological data (annual average flow, seasonal variations and changes before and after hydropower / public and irrigation abstractions) which could demonstrate impact of abstractions

In order to prepare the pilot exercise of an pressure and impact analysis of waste water discharges, the Agency should provide by 29<sup>th</sup> following information:

- Location all know collected sewage discharges into the Neretva including the connect number of people
- Location of the Waste water treatment plants, treatment levels and discharge quality data if available
- Data relevant to assess length of impacted river stretches (i.e. chemical monitoring or hydrological data for modelling).

## 5. Annex: Preliminary comments and suggestion respective establishing reference conditions

There is no clear tested method which works everywhere, it always depends on the availability of data and expertise.

Note: Reference conditions have to be established for each water type separately

1. Investigate pristine water bodies (apply a pressure screening to select sites – see check list below; and cross check with saprobic index map or other parameters, i.e. BOD, and morphological classification)

*If no pristine water body or sufficient data are available (which is often the case)*

2. Use data of neighbouring regions, i.e. from Croatia or Slovenia

*If not available*

3. Use historical data or models, as last resort only (*presumably sufficient sites with reference conditions should be available on the Balkan*)

*If not available and in addition to 1-3*

4. Use expert judgment

### Tool 1. Proposed pressure screening criteria for selecting potential reference condition sites or values.

In the table below a set of criteria is suggested which elaborate the degree of acceptable change in an anthropogenic pressure that would provide the limits of high status sites or values. The table may be used as a screening tool alongside with ecological criteria for selection of potential reference sites or values. A prerequisite for the use of pressure screening criteria is that the relationship between pressure and ecological impact is well established and that the impact correspond to the normative definitions in the Directive (Annex V: 1.2). The screening criteria is suggested to be further developed into water body type specific criteria and tested in Pilot River Basins and future work of the Common Implementation Strategy during 2003-42004..

	High ecological status
General statement	<ul style="list-style-type: none"> <li>High status or reference conditions is a state in the present or in the past corresponding to very low pressure, without the effects of major industrialisation, urbanisation and intensification of agriculture, and with only very minor modification of physico-chemistry, hydromorphology and biology.</li> </ul>
<b>Diffuse source pollution</b>	
Land-use intensification: Agriculture, forestry	<ul style="list-style-type: none"> <li>Pre-intensive agriculture or impacts compatible with pressures pre-dating any recent land-use intensification.</li> <li>Pressures pre-dating any recent intensification in airborne inputs that could lead to water acidification.</li> </ul>
<b>Point source pollution</b>	
Specific synthetic pollutants	<ul style="list-style-type: none"> <li>Pressures resulting in concentrations close to zero or at least below the limits of detection of the most advanced analytical techniques in general use (A Selection process for relevant pollutants in a river basin is presented as an example of best practice in section 6 of the guidance document from Working Group 2.1, IMPRESS).</li> </ul>
Spec. non-synthetic pollutants	<ul style="list-style-type: none"> <li>Natural background level/load (see reference above)</li> </ul>
Other effluents/discharges	<ul style="list-style-type: none"> <li>No or very local discharges with only very minor ecological effects.</li> </ul>
<b>Morphological alterations</b>	
River morphology	<ul style="list-style-type: none"> <li>Level of direct morphological alteration, e.g. artificial instream</li> </ul>

	and bank structures, river profiles, and lateral connectivity compatible with ecosystem adaptation and recovery to a level of biodiversity and ecological functioning equivalent to unmodified, natural water bodies
Lake morphology	<ul style="list-style-type: none"> <li>• Level of direct morphological alteration, eg. structural modifications that hinder fluctuations of the water surface, compatible with ecosystem adaptation and recovery to a level of biodiversity and ecological functioning equivalent to unmodified, natural water bodies</li> </ul>
<b>Water abstraction</b>	
River and lake water abstraction	<ul style="list-style-type: none"> <li>• Levels of abstraction resulting in only very minor reductions in flow levels or lake level changes having no more than very minor effects on the quality elements.</li> </ul>
<b>Flow regulation</b>	
River flow regulation	<ul style="list-style-type: none"> <li>• Levels of regulation resulting in only very minor reductions in flow levels or lake level changes having no more than very minor effects on the quality elements.</li> </ul>
<b>Riparian zone vegetation</b>	
	<ul style="list-style-type: none"> <li>• Having adjacent natural vegetation appropriate to the type and geographical location of the river.</li> </ul>
<b>Biological pressures</b>	
Introductions of alien species	<ul style="list-style-type: none"> <li>• Introductions compatible with very minor impairment of the indigenous biota by introduction of fish, crustacea, mussels or any other kind of plants and animals.</li> <li>• No impairment by invasive plant or animal species.</li> </ul>
Fisheries and aquaculture	<ul style="list-style-type: none"> <li>• Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends</li> <li>• Stocking of non indigenous fish should not significantly affect the structure and functioning of the ecosystem..</li> <li>• No impact from fish farming.</li> </ul>
Biomanipulation	<ul style="list-style-type: none"> <li>• No biomanipulation.</li> </ul>
<b>Other pressures</b>	
Recreation uses	<ul style="list-style-type: none"> <li>• No intensive use of reference sites for recreation purposes (no intensive camping, swimming, boating, etc.)</li> </ul>