1. INTRODUCTION

(by U.H. Humpesch)

The Austrian National Committee (ÖN) of the International Working Group on Danube Research (IAD) initiated an ecological research programme for the Danube in Austria. This research programme was designed for the backwater area above the Altenwörth hydroelectric power station (48°23'N, 15°51'E) and was financially supported by the Austrian Man and Biosphere-Programme No. 5/9 and 20 and the Austrian Danube Hydropower Board (ÖDK). The results of this "Altenwörth Ecosystem Study" have been described in detail in Grosina (1985) and in Hary & Nachtnebel (1989).

The aim of the present study is to describe methods of biological sampling in the Danube, especially those which have been developed and used throughout the limnological part of this study.

The choice of a sampler for sampling organisms in a large, deep river depends upon the purpose of the exercise. The major objectives of sampling may be divided into the following three broad categories. They become progressively more difficult to fulfil because they demand a successive increase in the effort required both for sampling and the identification of the catch.

- a) The simplest objective is a list of taxa or species with no measure of abundance. Some biotic indices may be derived from such data and the complexity of the index depends upon the taxonomic level to which the organisms are identified. The minimum requirement is a sampler that adequately collects material from different types of microhabitat.
- b) A second objective may be to measure the relative abundance of species. This is useful because it can be used to calculate some community or biotic indices based on rank order or diversity. For this purpose, the sampler must operate in a standard manner on all the types of substrata that are to be investigated. Although a qualitative sampler is adequate, quantitative samplers are preferable because their performance is less biased by the operator.
- c) The third objective may be to estimate the number or biomass of organisms per unit area, and these estimates can be used to compare

spatial or temporal differences in populations using parametric tests, e.g. to detect small changes in water quality and rates of growth, reproduction and mortality. Only quantitative samplers may be used for this purpose and many replicate sampling units need to be taken on each type of habitat. The effort required is considerably greater than for objectives a) and b).

References

Grosina, H. (1985): Vorstudie für das Forschungsobjekt "Ökosystemstudie Donaustau". – Veröffentlichungen des Österreichischen MaB-Programmes Bd. 11. Universitätsverlag Wagner, Innsbruck.

Hary, N., Nachtnebel, H.-P. (ed.) (1989): Ökosytemstudie Donaustau Altenwörth: Veränderungen durch das Donaukraftwerk Altenwörth. – Veröffentlichungen des österreichischen MaB- Programmes Bd. 14. Universitätsverlag Wagner, Innsbruck.

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: Wasser und Abwasser

Jahr/Year: 1990

Band/Volume: <u>1990_Supp_2</u>

Autor(en)/Author(s): Humpesch Uwe H.

Artikel/Article: 1. Introduction 9-10