i.) English summary (W.ELKINS)

Activities of the limnology department:
The chapter of introduction is divided into 5 parts, each representing a different facet of the activities in the department:
a) The teaching program is described in light of the new University Educational Act and it's application in relation to the lectures offered. A list of the graduate students and the titles of their doctoral dissertations is also given.
b) The current research projects are outlined, focussing on their principle subject matter, goals, financial support, and organization.
c) The aspects of water quality control are examined.
d) A review of the conference of german-speaking limnologists in Innsbruck is made, including a schedule of the lectures held and the addresses of the lecturers.
e) Finally, the publications issued in 1976 are listed.

I. Study of the ecosystem "PIBURGER SEE"

The first chapter of part I (1.1.MAYRHOFER) gives a survey of a few basic parameters such as oxygen, conductivity, pH, sulphate, chloride, calcium, magnesium, sodium, and potassium. The questions of thermal stratification and heat budget are also dealt with. The iron-cycle, iron bacteria and the sedimentation of total iron are discussed in a now completed dissertation (1.2.GANTHALER). Three phosphorus frations (1.3.BACHINGER) have been determined monthly: dissolved orthophosphate and total phosphorus content in filtered and unfiltered water. In addition rainwater was measured weekly for total phosphorus content. Three tables present the individual phosphorus compounds in relation to depth and the total content in kg P/ lake. The next chapter (1.4.SOSSAU) studies 3 inorganic nitrogen compounds (NO_3, NO_2, NH_4) and 2 forms of organic nitrogen (DON,PON), for which samples were taken on a monthly basis. Included are the results of measurements from 1975, in which 2 forms of organic carbon (DOC,POC) were determined. Part I concludes with a glance at a new dissertation which will attempt to study the effect of nitrogen fixation and denitrification on the nitrogen balance of the lake (1.5.ELKINS)
During Autumn 1976 a seperate project on wind distribution on Piburger See (2.1.GATTERMAYR) was undertaken to determine if the wind registration which had up until then taken place punctiform on a floating island was representative for the entire lake surface. A computation of the water economy was also attempted (2.2.GATTERMAYR). In an additional hydrologic-meterological contribution (2.3.GABL) the difficulties and their solutions pertaining to

the measurement of inflow and outflow are discussed.
A résumé of the already completed dissertation (3.1.PSENNER) on the bacterio plankton of Piburger See gives a general view of total bacteria, colony number, generation time, and coliforms. The topics of the second chapter (3.2.ROTT) are the ratio of individual forms to total phytoplankton compared with the rates obtained in 1975, a comparison between amounts of phytoplankton biomass in 1975 and 1976, and chlorophyll and primary production rates. In the course of the studies on zooplankton the protozoa were investigated according to biomass and spatial and temporal distribution (3.3.1. SCHLOTT/IDL). The chapter on crustaceans and rotifers (3.3.2.SCHABER) focusses on the estimation of abundance and biomass, for which samples were taken every two weeks from one particular site on the lake. Chapter 3.3.3. (HEHENWARTER) "Horizontal distribution of crustaceanplankton" describes the methods of collection and measurement of currents.
In the period between January 1975 and June 1976 sedimentation rates were determined at 4 different levels of depth. The collected sediment was examined (4.1.DÖRRSTEIN).
The following chapter gives a summary of the dissertation on benthic nematodes (5.1.PEHOFER). The benthic ostracodes are the topic of another dissertation just brought to a conclusion, the results of which are also given in the form of a summary (5.2.THALER). The same goes for the study on chironomides (5.3.SCHLOTT).
The last section on the study of Piburger See is the investigation of it's fish with the emphasis on the population estimate of rudd (Scardinius erythrophtalmus) and on sport fishing at the lake (6.1.AUER). Next to the actual study of the lake the external influences are examined in detail, chiefly through the analysis of the macrozoobenthos of the sole aboveground inflow, the Piburger Bach (7.1.KOWNACKA). The following chapter gives the results of the drift of Baetis alpinus over 24 hours in Piburger Bach (7.2.TARMANN-PREM). Much of the collected data has been integrated into a dynamic simulation of the ecosystem PIB which is explained for the first time in it's operational manner and difficulties associated with it (8.1.KNECHT).

II. Study of the ecosystem "VORDERER FINSTERTALER SEE" (VFS)
Differing from last year's annual report the conversion factors for abundance and biomass were newly determined (1.TAUTERMANN). Bacterial production was calculated by elimination data. A feasible method of calculating production by free-living nematode populations is demonstrated with help of 2 curves, one for elimination, the other for mean weight, and both in relation to time. (I.5.1 PEHOFER)

III. MAB-project Finstertaler Speicher

After the lake (VFS) had been almost totally drained so that an artificial lake could be built, research on the lake focussed on the remaining water body, while taking into consideration that the lake was to be refilled for power production purposes. Plankton and chemistry (1.WITT) and benthos (2. BRETSCHKO) of the remaining water body are described. Within the framework of this project are also treated the results of research done on Hinterer Finstertaler See, another alpine lake drained and refilled, that was however still in it's origional state at the time of the investigations. As on VFS the emphasis here lay on plankton and chemistry (3.WITT) and benthos (4. BRETSCHKO). To estimate the soluble substance on the surface of the ground, before and after it was covered by the refilling of the lake, an additional parameter was pursued by determining the decomposition of allocthonous organic substances (5.WITT).

IV. Gossenköllesee project

In an introduction (1.BRETSCHKO) a general idea is given of the history, the technical equipment and the work done so far at the station. A study that investigates and quantifies the benthic and pelagic population of Cyclops abyssorum tatricus has already begun (2.PRAPTOKARDIYO). Because of the particular quality of the substrate of the lake bed, that consists almost totally of rough blocks, a special apparatus was developed for the collection of hard substrate for a new dissertation on stock and production of chironomides (3.ZADERER). A comparative study on Cyclops abyssorium tatricus is being made on Kalbelesee and first results are reported (4.GNAIGER).

V. Streams

In a nature preserve in Upper Austria 2 studies were made and are now completed that concerned themselves with the ephemeroptera fauna (1.WEICHSELBAUMER) and the plecoptera fauna (2.DIEM) respectively. In Tyrol the impact of the introduction of waste water from the winter resort Obergurgl into the Gurgler Ache was examined in detail. (3. KOWNACKA)

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Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: Jahresbericht der Abteilung für Limnologie am Institut für Zoologie der Universität Innsbruck

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Artikel/Article: Activities of the limnology department 1-3