Documentation of the Training Course

"Living Lakes Eastern Europe Network"

Radolfzell
Lake Constance, Germany
May 22nd – May 27th 2007

Supported by the City of Radolfzell and

Content

1. Introduction

Lake Constance is the second largest freshwater lake in Central Europe. 2.2 million people live in the Lake Constance region. Over 4.5 million people drink Lake Constance water, and up to 50.000 boats are based on the lake. Lake Constance has preserved a natural landscape with rich biological diversity. About 200.000 water birds rest or hibernate in the region.

The major focus of the course was on presentations and excursions covering issues of management and rehabilitation of lakes and wetlands, small technical treatment plants, sustainable tourism and promotion of organic agriculture in wetland and lake areas.

Fieldtrips included visits to an organic farm and a farmers market for regional produce, to an Ecocamping site and to a biological waste water treatment plant as well as to the Wollmatinger Ried, a protected wetland area at Lake Constance.

The training course was organised by the Bodensee-Stiftung - Lake Constance Foundation - an international foundation for nature and culture. The training course was offered in the context of the Global Nature Fund GNF coordinated Deutsche Bundesstiftung Umwelt DBU sponsored project “Living Lakes Eastern Europe Network”. One of the major tasks of the project is the dissemination of know-how to interested parties primarily at European level.

Partner NGOs from seven regions in five EU countries are involved in the DBU-project:
Lake Balaton in Hungary, the Milicz Ponds in Poland, the Labonoras Nature Park in Lithuania, Lake Võrtsjärv and Lake Peipsi in Estonia and Lake Constance and the Müritz in Germany.
The overall goal of the Living Lakes Eastern Europe Network is to promote target-oriented cooperation between NGOs and communities in the field of protection of lakes and sustainable development. The objectives will be achieved through networking and exchange of information, thematic workshops and conferences, as well as the implementation of concrete model projects in the respective regions. Here held as a training course.

2. Day One: Introduction to the International Lake Constance Region

Main threads & challenges

- High population depth: more than 500 inhabitants per square kilometre near the sensitive shore of the lake; very dense urbanisation, especially in the area around the lake
- Intensive traffic volume; very dense traffic infrastructure
- 55.000 officially registered boats, 2/3 of them with an engine
- Agricultural special cultivation (fruits, wine, vegetables, hops); intensive production with use of pesticides and nitrates
- Intensive tourism (about 27 million day trippers / year; short high season)
- Different legal situation and political planning in the three littoral states

Lake Constance Foundation (International Foundation for Nature and Culture)

- Founded by 6 nature protection and environmental NGOs around the Lake: non-governmental, non-profit)
- Environmental Council Lake Constance (18 members)
- Demonstrate sustainable development (agriculture, land-use planning, tourism & mobility, environmental education),
- Develop Lake Constance as a model region for sustainable development
- Financing by project budgets (>90%) and business corporation (<10%)

<u>Activity fields</u>

- Urban settlement: sustainable management for municipalities
- Agriculture: organic and environmentally sound production, marketing for regional products
- Environmental education: networking, quality development, development of new offers
- Water sports: solar boat network, environmentally sound sport events, antifouling
- Tourism & Mobility: information systems for info-counters, adventure bike path

<u>Projects (selection)</u>

- ECOLUP (www.ecolup.info)
- Managing Urban Europe-25 (www.mue25.net)
- “Gutes vom See” (development of a brand for regional food) (www.gutes-vom-see.de)
- “Erlebnisradeln am Untersee” (adventure biking track)
- “Naturschutzleistungen der Landwirtschaft” (competition for farmers)
- “Bodensee-Pfad” (information tools around the lake)
- “Spürsinn” (network for environmental education) (www.spuersinn-bodensee.info)“Ecocamping” (Eco-management on campgrounds)
- “Solar boat network”

3. Day Two: Management of Water, Lakeshore and Communities

3.1 City of Friedrichshafen

Management of Environment (Menviro) and Energy (Menergy)
Menviro and Menergy have been developed independently.

- Menergy since 1997 for all communal real estates and first energy report in 2002.
- Menviro by the examples of school-buildings, hospital and water treatment plant with first validation of three schools in 2003, revalidation in 2006. First validation water treatment plant 2007/2008.

Both lines fit in the municipal sustainability process, which has as environmental oriented framework the "Environmental guidelines for urban development (2004)" and the "Environmental programme 2005-2009".

These were supplemented in 2006 by the Energy and Climate Protection Concept for the whole city of Friedrichshafen which serves as basis for the application for the European Energy Award.
The application will contain three elements which are being elaborated until end 2007:

- Action programme Energy and Climate Protection 2008-2012 according to the Environmental Programme,
- Energy and Climate Protection Concept for the Reduction of CO_2-emissions and cost-benefit-analysis,
- Energy and Climate Protection report with key figures for presentation to the public.

Both lines – Menviro and Menergy – shall be brought together in a Management of sustainability in intermediate-term. Some parts of it have already been realised.

- The indicator based reporting
- Project check by sustainability criteria that is to be introduced through obligatory self-commitment for all building planning and programmes.

Work on "Strategic Orientation for urban development"

- by the mayor's office
- on the basis of the "Urban development process" (which was coordinated by the agency of urban planning in the course of the land utilisation plan 2006-2015) ⇒ all overall concepts (Urban overall concept, Environmental overall concept etc.) and target programmes (Education concept, Sports concept etc.) are gathered and compiled in a summarizing catalogue of targets with the title "Strategic Orientation Friedrichshafen". This operation had already been launched within the project partnership at "Managing Urban Europe" (www.mue25.net) oriented on the structure of the Aalborg Commitments from 2004.
- The Strategic Orientation is to be supplemented by operating figures based on the sustainability report of the Institution on Environment, Measurements and

Nature Conservation Baden-Württemberg (Landesanstalt für Umwelt, Messungen und Naturschutz Baden-Württemberg)

Additional goal: Updating the city's sustainability report from the years 2003 and 2005 for the second time with broad amplifications until end 2008. See also the Project-Homepage www.mue25.net

Dr. Tillmann Stottele,
Umwelt- und Nachhaltigkeitsbeauftragter der Stadt Friedrichshafen, Amt für Bürgerservice, Sicherheit und Umwelt (BSU), Abteilung Umwelt und Naturschutz (AUN), Eckenerstraße 11, 88014 Friedrichshafen, Tel. +49 (0)7541 / 203-2190, Fax +49 (0)7541 / 203-82190,Mobil +49 (0)175 / 185 13 84, Mail umweltamt@friedrichshafen.de , www.friedrichshafen.de

3.2 Institute for Lake Research (ISF)

The Institute for Lake Research (ISF), located in Langenargen near Friedrichshafen was founded in 1920 by the private association for lake research and lake management ("Verein für Seenforschung und Seebewirtschaftung"). The institute focuses on Lake Constance, its tributaries from Baden-Württemberg and the more than 400 natural lakes within the state. During the first 15 years, the ISF dealt with the scientific basics for better management and understanding of the biology and dynamics of the lake's fish sticks. As early as the 1930s, changes in water quality could be observed, which originated from the introduction of waste water into the lake. Much of ISF's work since the 1950s has focused on the investigation of processes and strategies against water pollution.

Today ISF'S main task is monitoring Lake Constance through long term scientific research projects, in order to document and evaluate its state and development, but also to create action plans and prognosis for policy makers and the general public. For several years now ISF has successfully run an extensive communications program that has informed the public of the region and promoted the sustainable use of the ecosystem of Lake Constance.

Lake Constance: Role of the International Commission for the Protection of Lake Constance (IGKB)

„The boundaries between countries result from historical events, and, therefore, they do not coincide with the boundaries of the watersheds. As a consequence, several lakes and rivers mark the boundaries between countries or cross them. To effectively manage these water resources and protect them against pollution, the governments of the countries concerned must agree upon common rules and actions concerning this problem." (RAVERA et al,1980)

Physical and limnological data

Lake Constance is the second largest prealpine European lake by area and volume after Lake Geneva. The lake basin is situated in the Molasse basin of the northern Alpine foreland and was mainly formed by water and ice activity during the last Quaternary glaciation period more than 15.000 years before present.

The catchment area of Lake Constance is about 11.000 km² (= 20times the lake surface) and covers the territories of the three European countries Germany (28%), Switzerland with Liechtenstein (48 %) and Austria (24%).

Lake Constance is traditionally divided into Lower Lake Constance and Upper Lake Constance. More than 90% of the water flow originates from the Alps by the three inflows Alpenrhein, Bregenzerach and Dornbirnerach in the eastern part of the Upper Lake.

Morphometric data of Lake Constance (47°39'N, 9° 18'E) and its catchment area:

	Upper lake	Lower lake	total
Altitude a.s.l (m) at middle water level	395.33	395.11	--
Surface area of water (km²)	472.3	62.4	571.5
Volume ($10^9 m^3$)	47.637	0.810	48.49
Maximum depth (m)	253.3	40	--
Mean depth (m)	101	13	85
Mean range of annual water level fluctuation (m)	1.50	1.48	--
Length of shoreline (km)	186	87	273
Mean outflow ($10^9 m^3$/yr)	11.1	11.7	11.7
Residence time (yr.)	4.3	(0.07)	--
Catchment areas (km²)	10919	568	11487

Lake Constance is oriented from Northwest to Southeast and the water body is strongly influenced by wind-activity. It is a phosphorus-low, mesotrophic hard water lake with calcite precipitation due to biogenically induced increase of the pH. Electrical conductivity of the water typically ranges between 260 and 300 µS/cm². The minimum and maximum concentrations of main chemical water constituents in Lake Constance are:

	mg/l	mol/l
Ca^{2+}	36.1 - 56.1	0.9 - 1.4 x 10^{-3}
Mg^{2+}	4.9 - 9.0	0.2 - 0.37 x 10^{-3}
Na^{b}	3.4 - 4.6	0.15 - 0.2 x 10^{-3}
K^{-}	1.0 - 1.3	0.26 - 0.33 x 10^{-4}
Sr^{2+}	0.39 - 0.48	4.4 - 5.4 x 10^{-6}
HCO_3^{-}	142.2 - 155.6	1.68 - 2.55 x 10^{-3}
SO_4^{2-}	31.0 - 35.5	0.32 - 0.36 x 10^{-3}
CL^{-}	4.8 - 5.9	0.13 - 0.16 x 10^{-3}
NO_3^{-}	3.4 - 4.8	0.5 - 0.7 x 10^{-4}

The phytoplankton succession indicates a spring bloom followed by the clear water phase with very low phytoplankton concentrations due to zooplankton grazing, and a variable summer. In total, diatoms contributed up to 90% of the phytoplankton bio-volume in spring and approximately 5 % during the clear water phase. Phytoplankton and bacteria, the crustaceans are the most important contributors of biomass in Lake Constance. In Winter, copepods dominate the zooplankton biomass and in spring and summer cladocerans represent the ruling phytoplankton consumers. Besides the crustaceans, protozoa and rotifers are distinct but less important participants of the zooplankton community. About 30 species of fish contribute to the fauna of Lake Constance. The dominant species are whitefish and perch. During summer, zooplankton is the main food source for most fish in Lake Constance even for those species which normally consume other food.

Human impact and Eutrophication

6.500 years ago the first lake settlements built on stilts in the lake were built on the shorelines of Lake Constance. Continuous settlement started about 4.000 years ago during the Bronze Age and about 2.000 years before present the Romans built military bases and harbours around the lake.

Alemannic tribes conquered the region some hundred years later and during the Medieval Period most of the modern cities and villages were founded.

During the twentieth century the population density significantly increased from 50 to 120 inhabitants per km² on average. Nowadays the region of Lake Constance serves as environment and place of work for more than 1.2 million inhabitants. Local industries (engines, aircraft- and spacecraft equipment) and agriculture (hop, apple trees, vineyards)
together with the inhabitants discharge sewage water equivalent to 3.2 million people.

Fishery has a long lasting tradition in Lake Constance starting with the first human settlements about 6,000 years BP. Today, about 170 professional fishermen and more than 10.000 anglers annually catch more than 1,000 metric tons of fish from the lake. Furthermore the lake is a major tourist attraction for more than 2 million visitors per year and is used by some 55,000 boats mainly for leisure activities. Last but not least Lake Constance is one of the most important drinking water reservoirs in Central Europe for more than 4 million people.

There was a long tradition of limnological investigations of Lake Constance, that began with first observations of phytoplankton at the end of the last century. Regularly, the lake was studied since 1919 by two Institutes in Langenargen and Constance. At this time Upper Lake Constance was considered as a typical oligotrophic lake. Therefore a fertilisation with liquid manure was suggested to increase the production of fish.

Only one and a half centuries later a fertilisation of the lake due to pollutants from the inhabitants and their industries around the lake, became obvious. During the 1930s changes in phytoplankton composition and oxygen budget were observed. In the 1950s the phytoplankton biomass strongly increased, some algal species disappeared and new ones appeared. Algal blooms combined with increasing zooplankton and fish populations characterised the new process of eutrophication. The contents of Orthophosphate in water rose from 2-3 mg/m³ in 1950 to 9 mg/m³ in 1959. Although this development seems neglectable compared to later phosphorus concentrations clear-sighted scientists and politicians apprehended a severe danger for the health of the lake. It was clear that this danger could only be banished with the co-operation of all countries around the lake.

International Commission for the Protection of Lake Constance (IGKB)

On behalf of the international law, Lake Constance is a curiosity. Clearly defined national frontiers between Switzerland and Germany exist in the Lower lake. In the Upper lake only the shallow water area from the shoreline to 25 m water depth is national territory of the bordering countries. The major part of Upper Lake Constance is considered as common property, a so-called „condominium“. This fact plays an important role for co-operation in the protection of the lake.

In order to preserve the lake ecosystem from further degradation the International Commission for the Protection of Lake Constance (IGKB) was founded in 1959 by the three bordering countries Austria (Vorarlberg), Germany (Bavaria and Baden-Württemberg) and Switzerland (St. Gallen and Thurgau).

The main duties of the IGKB are:

- Observation of the lake
- Confirmation of the causes of its pollution
- Recommendation for co-ordinated preventive measures
- Discussion of the planned utilisation of the lake

The commission has a chairman and is composed of delegates from member governments and a limited number of high officers of those governments. The chairmanship changes after 2 years. As a rule the commissions meet at least once a year and the deputies determine measures by the principle of unanimity. As consultant agency the commission cannot decide on rules and actions connected with environmental protection but by agreement the regional governments are obliged to transform the recommendations of the IGKB into national law.

A technical and scientific board of experts serves as official consultant to the commission. The experts study the scientific and technical problems proposed by the commission and examine the research carried out by other organisations. They elaborate on the research program and prepare reports on the research sanctioned by the commission. The board of experts has 3 working groups for studying special problems concerning the topics „Lake“, „Catchment Area“ and „Accident defence“. The working results are summarised and published in so called green reports (annual investigation data of the lake monitoring) and blue reports (case studies and special topics).

Fortunately in the early 1960s phosphorus was already recognised as the main factor responsible for eutrophication. Thus the first steps could be taken to optimise reduction of phosphorus loads entering the lake. Until the early 1970s the major part of sewage entered the lake without any treatment. Therefore the IGKB desired to purify the waste water around the lake with uniform guidelines and common programmes for the construction of canalisation and sewage plants.

During the 1970s the phosphorus concentration of the lake water increased even more and at times an annual increase of 15% phosphorus could be observed. As a result, algal growth increased greatly. In 1972 during a phase of unfavourable climatic conditions and extremely low water load an oxygen depletion beyond 2 mg/l occurred in the deepest part of the lake. In 1979 phosphorus reached its maximum value of 87mg/m³.

During that time channel systems and efficient sewage plants with three purification stages (mechanical, biological and chemical purification) were built in the whole catchment area. More than 6 billion Swiss francs were invested to connect almost 92% of the inhabitants to these plants. So effective sewage treatment and the ban of phosphorus in detergents were important steps towards a sustainable development of the lake and stabilised the ecosystem to withstand a succession of years with unfavourable climatic conditions resulting in an incomplete vertical water circulation.

From 1980 onwards the phosphorus increase was stopped and its concentration sunk from 87 mg/m³ in 1979 to 15 mg/m³ in 1999.

Nevertheless the true scale to estimate the effect of restoration is not the reduction in phosphorus but the biological response of the lake, especially that of phytoplankton. For some years algal biomass has shown a decreasing trend. For example in the shallow water zones and in the area of river mouths the success has been very convincing. The success can be ascertained to a reversal of the lake development towards a state typical of a lower nutrient level. The continuous data sets show that the phytoplankton composition and its seasonal distribution has changed to a situation known from the times of a more oligotrophic lake.

With increasing numbers of inhabitants the problem of growth of the remaining phosphorus and other harmful substances becomes topical. Therefore the IGKB 'Guidelines' from 1987 demand on the base of a holistic view to include the catchment area and all fields affecting the lake, especially in industry, agriculture, settlement and traffic. In addition to the stress caused by substantial loads the stress by structural interferences is to be considered in the same way. Preventive measures should be realised before harmful effects occur.

All these efforts may serve to develop lake Constance so that it is stable against anthropogenic stress couples with unfavourable climatic conditions, which have increased during the last years. To obtain this state it is necessary to improve the quality of the whole lake with its pelagic, littoral and profundal zones. At the moment Lake Constance can be looked at as an ecosystem in transition. The various uses such as production of drinking water, fisheries and recreation can be maintained only by means of an ecologically stable state of the lake.

Selected References:

GÜDE, H., ROSSKNECHT, H. & WAGNER. G. (1998): Anthropogenic impacts on the trophic state of Lake Constance during the 20th century - Arch. Hydriobiol. Spec. Issues Advanc. Limnol. 53: 85-108.

MÜLLER, G. & GEES, R.A. (1968): Origin of the Lake Constance basin. - Nature 217: 836-837.

MÜLLER, H. (1993): Lake Constance - A model for water restoration in international cooperation. - In: SUND, H., STABEL, H.-H., GELLER, W., XIAOGAN, Y., KECHANG, Y. & FENGNING, S. (eds.): Environmental Protection and Lake Ecosystem. - China Science and Technology Press, pp. 345-356.

RAVERA, O., BARROIN, G., IMBODEN, D. & WAGNER G. (1980): Structure, aims and activities of the international Alpine commissions in Europe - Proc.Int. EPA/OECD; Symposium on Inland Waters and Lake Restoration 1980; Nr. 440/5-81-010

STABEL, H.-H. (1998): Chemical composition and drinking water quality of the water from Lake Constance. - Arch. Hydrobiol. Spec. Issues Advanc. Limnol. 53: 13-30.

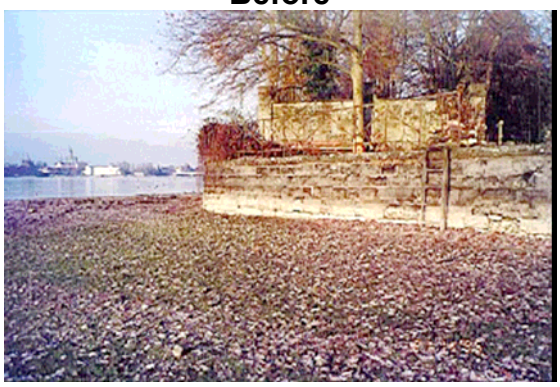
WESSELS, M. (1998): Geological History of the Lake Constance area - Arch. Hydriobiol. Spec. Issues Advanc. Limnol. 53:1-12.

3.3 Lake Shore Renaturation at Radolfzell

Over the course of last century, the waterside of Lake Constance has been changed, secured and urbanised continuously due to an ever increasing number of settlements. The high degree of urbanisation at Lake Constance disturbs the ecosystem and the shallow water zone considerably.

The shallow water zone is a major contributor to water purification, since organic substances are decomposed here. It is spawning ground, nursery, habitat and retreat for various species of fish, amphibians and many other organisms. It is also here that wave and current energies are transformed. Further damage to the waterside through urbanisation include erosion, formation of broken off edges, uprooting of waterside vegetation (trees, bushes), destruction of reed beds and even the eventual destruction of walls through washed away foundations. The renaturation measures are confined to the water change zone. The transition of land and water is to be reactivated. In doing so, the retaining wall will be removed, partly destroyed or banked and the lakeside banks will be covered with gravel and transformed to a natural embankment. The embankment will be stabilised and secured through the deployment of specially selected stones, so called “Wacken”, at the bottom of the bank. During the execution of the construction work, natural building materials and unbroken corn for gravel cover and Wacken are used exclusively. Whereby the corn fraction is dependent on the slope of the embankment. The construction work itself is only implemented at low water levels in winter (November till March). Transport of the materials is conducted from lakeside. The construction work is completed using the following the steps: construction of Wacken at the bottom of the bank to secure the gravel aggregate bed, raising of a gravel cover over a and finally planting the embankment.

Before



After

4. Day Three: Sustainable Tourism and Visitor Management

4.1 Nature Protection Area Wollmatinger Ried (Annual Report 2006)

I. GENERAL INFORMATION

1. Natural heritage – conservation status

1.1 Environment

The average temperature during the year under review was 9.7 °C, making it 0.5 °C above the long-term mean. Particularly warm months were October 2005 and June and July 2006. It was unusually cold in January, March and August 2006.

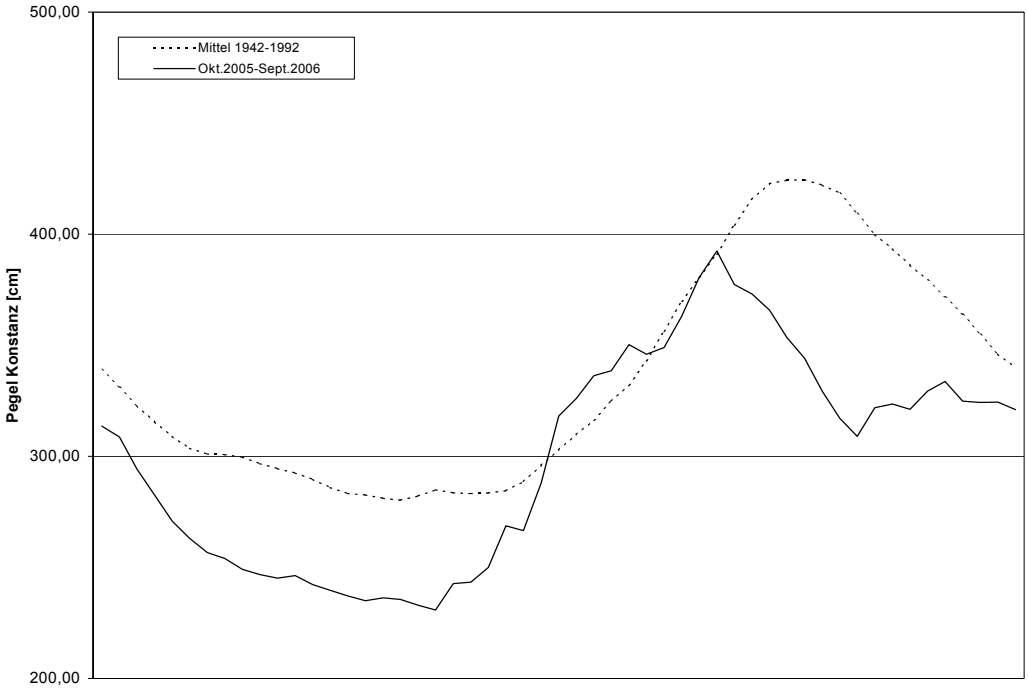


Fig. 1: Lake Constance water level (Konstanz harbour water mark) from October 1, 2005 to September 30, 2006 (continuous line) and mean values from 1943 to 1992 (dotted line)

As in the four previous years, the year under review was substantially drier than the long-term mean of 849 mm, with an annual rainfall totalling 749 mm. The months June, July and September 2005 were particularly dry, while March, April and August 2006 had unusually high rainfall.
The level of water in Lake Constance lay well below that of the long-term mean during the period from October 2005 to March 2006 (cf. Fig. 1), and only reached the average mean values from the end of March to the end of May 2006. After reaching its maximum level for this year at 398 cm on June 2, 2006, the level dropped due to a protracted dry spell throughout the whole catchment area rapidly to 306 cm on August 03, 2006. By September 30, 2006, the level had risen only marginally to 321 cm.

1.2. Flora and vegetation

The flower development of most value defining species has been positive.
Most types of moor grass meadows (*Molinion*) demonstrated good bloom development: The **Siberian iris** (*Iris sibirica*) once again achieved a very high bloom density with 827 (05=1,100) specimens on both sample areas. The **marsh gladioli** (*Gladiolus palustris*) continued on its recovery since the flood of 1999 with 2,061 (05=1,508) specimens. The **marsh gentian** *(Gentiana pneumonanthe)*, recorded only on selected sample areas, demonstrated an above-average density with 3,167 (05=2,358) inflorescences. A slight increase in stocks was registered for the **hedge hyssop** (*Gratiola officinalis*) with 4,875 shoots. The *Thalictrum simplex ssp.galioides* flowered profusely again with 4,988 (05=5,097) specimens. Only the **fringed pink** (*Dianthus superbus*) demonstrated a dwindling tendency with 367 (05=451) specimens, whereby development differed in certain of the individual growth areas.
The alkaline fen (*Caricion davallianae*) species demonstrated largely positive development. The **bird's eye primula** (*Primula farinosa*) remained only just below its highest recorded value (03=58,021) with 52.846 specimens. The **bladder gentian** (*Gentiana utriculosa*) produced 5,670 (05=1,540) flowering specimens. In both of the old growing locations, 11 specimens of the **lax-flowered marsh orchid** (*Orchis palustris*) were found, and a further 23 flowering specimens were counted at a new location discovered last year. With 8,659 specimens, the **marsh dandelion** (*Taraxacum palustre agg.*) achieved its best result registered to date. Stocks of **summer ladies tresses** (*Spiranthes aestivalis*), which as a late flowering species presumably suffered as a result of the severe summer drought, slumped to 20 (05=150) specimens.
The species common to the mesobromion grasslands also developed positively: The **burn-tip orchid** (*Orchis ustulata*) once again exceeded previous records with a stock of 1,834 (05=1,605) specimens. As in the previous year one specimen of the **late spider orchid** (*Ophrys holoserica*) was successfully identified. The **green-winged orchid** (*Orchis morio*) sustained the previous year's level with 59 (05=57) specimens. The **bug orchid** (*Orchis coriophora*) successfully exceeded the relatively good result achieved in the previous year (13 specimens) with a recorded 17 specimens.

Beach meadow by Irene Strang
The Bibershof beach meadows have developed well in 2006. The population of **shore weed** (*Littorella uniflora*) has fallen slightly compared to the previous year, while the **creeping spearwort** (*Ranunculus reptans*) has succeeded in further expanding. The small population of **Lake Constance forget-me-not** (*Myosotis rehsteineri*) has increased slightly. In March 2006, the beach meadow area and the adjoining vegetation

were mown and cleared. Unfortunately a heavy vehicle used to transport away the mown hay drove over the beach meadow, resulting in damage both to the vegetation and to the shore substrate itself.

Occurrence of neophytes

Due to the absence of summer flooding, stocks of **Canada golden rod** (*Solidago canadensis*) and **late golden rod** (*Solidago gigantea*) expanded markedly once again despite combative measures undertaken. Many of the known occurrences increased, and several new outbreaks were discovered in central beach meadow areas. Incidences of **red touch-me-not** (*Impatiens glandulifera*) have dwindled as a result of intensive combative measures in the Frohnried area; however in the Mühlegraben area and south of the sewage plant stocks are vigorous despite control measures. The **Jerusalem artichoke** (*Helianthus tuberosus*) to the west of the Reichenauer beach profited from the displacement of a hedgerow despite combative measures undertaken.

1.3 Fauna

Birds (*Aves*)

The extraordinary significance of the protected shallow water zone and the adjacent reedbed belt as a water fowl habitat was demonstrated again by the population counts of migrating water fowl using the zone as a stopover and to spend the winter. The monthly counts from September to April demonstrated total populations of a maximum of 47,000 individuals in October and 44,000 individuals in November 2005, whereby the count results were particularly remarkable for the following species: 222 **whooper swans** (*Cygnus cygnus*) in February, 4 **whistling swans** (*Cygnus columbianus*) from November to February, 4,200 **gadwalls** (*Anas strepera*) in November, 5,000 **green-winged teals** (*Anas crecca*) in November, 1,000 **pintail ducks** (*Anas acuta*) in December, 930 **shovelers** (*Anas clypeata*) in November, 6,600 **red-crested pochards** (*Netta rufina*) in September and 19,000 **common pochards** (*Aythya ferina*) in November. As the shallow water zone of the Ermatingen Basin is only partially protected, but the water fowl urgently require the entire area as a habitat, an extension of the protected zone is imperative during the winter months. Given the low water levels prevailing during the winter months, large areas of the protected zone dry up and consequently cannot be used by the water fowl.

The run of years with low water levels has continued. For the fourth time in succession, breeding outcomes for several water fowl types were unsatisfactory despite the gratifyingly high numbers of breeding adult pairs due to the fact that breeding locations in the reed banks were almost unusable. Particularly unsuccessful breeding results were recorded for the **black necked grebes** (*Podiceps nigricollis*) with 4 families (5 young) and **red-crested pochard** (*Netta rufina*) with 6 families (30 young). In contrast, the **great crested grebe** (*Podiceps cristatus*) achieved an astoundingly good breeding result with 112 families (173 young). The number of breeding territories for the **great reed warbler** (*Acrocephalus arundinaceus)* in the reed zone remained at the same low level with just 14 territories, and in the case of the **little bittern** (*Ixobrychus minutus*) only one territory appeared to be occupied once again. Other breeding birds in the silt areas were represented in lower numbers than in the previous year: **Savi's warbler** (*Locustella luscinioides*) with 21 territories, the **grasshopper warbler** (*Locustella*

naevia) with 16 territories and the **bearded tit** (*Panurus biarmicus*) with 7 territories. By contrast, the **black kite** (*Milvus migrans*) increased its number of territories to 6 territories. Once again at least 4 breeding territories were recorded for the **stonechat** (*Saxicola torquata*). After initial favourable development, the colony of **common tern** (*Sterna hirundo*) once again abandoned the territory prematurely following a serious event: In mid July at least 16 fledglings fell victim to an unknown predator.

Dragonflies (*Odonata*) by Achim Lehmann

On June 13, 2006, several areas were searched during the course of a full-day inspection for dragonflies and dragonfly exuvia. 11 different species were observed. Alongside the generally commonly represented specilies such as the **azure damselfly** (*Coenagrion puella*) and the **common blue damselfly** (*Enallagma cyathigerum*), particularly noteworthy was the occurrence of the **southern emerald damselfly** (*Lestes barbarus*). The appearance of this species which was spotted during the previous year at the shallow lake was confirmed again. While mapping was taking place, a mass hatching of over 300 young was witnessed. As many other species also occur here (including *Anax imperator, Libellula quadrimaculata, Sympetrum spec.*) with a consistent degree of regularity, it is urgently recommended that (at least partially) clearing of the vegetation should wait until hatching is complete.

Beetles (*Coleoptera*) by E. Konzelmann

Eight soil samples each were taken at eight locations with different botanical or cultivation characteristics. In parallel, netting catches were carried out. Two of the above mentioned eight collectives have already been determined as containing 55 beetle types make of 17 beetle families. Particularly notable was the appearance of the species *Paradromius longiceps* DEJEAN (sarabidae), *Stenus palustris* ERICHSON (staphylinidae) a*nd Aphthona herbigrada* CURTIS (chrysomelidae), which are extremely rare in Baden-Württemberg and whose presence was verified for the first time in the Wollmatinger Ried.

Butterflies (*Lepidoptera*)

The main occurrence of both the **scarce large blue** (*Maculinea teleius*) and the **dusky large blue** (*M. nausithous*) were recorded as in the previous year in the Frohnried area. A sighting was also verified of the *Maculinea teleius* on the “Alte Mehlprimelwiese” meadow. This was a first sighting of this butterfly since the flood of 1999 in its formerly most frequented habitat prior to the flood year in the “Langen Zügen” area.

The mini population of **alcon blue** (*M. alcon*) discovered only a few years ago was confirmed once again this year by the discovery of egg clutches.

2. Cultural heritage and socioeconomic context

2.2 Socioeleconomic context

In two areas within the protected site, fishing activity of relevance to wildlife is in evidence: In the Schlauch and Reichenau Dam areas, numerous bow nets were set up and regularly emptied from as May onwards before the occurrence of the flooding (cf. Chapter 5.2.4). In the inner Hegnebucht area, nets were set up from the spring of 2006 presumably for fishing purposes and frequent trips made to them. Both occurrences lead to increased disturbance, particularly for water fowl.

3. Education and scientific interest

3.1 Visitors – Information policy

3.1.2 Frequentation of visitors and behaviour

During the period under review, 72 guided tours took place in the reservation, attended by 1,543 participants. With a total of 5 instructive boat trips, a large number of passengers also received instruction in the natural history of the area. 12 nature study boat trips allowed 314 visitors to appreciate the beauty of the area and the need for its protection. The NABU visitor's centre was pleased to welcome 1,223 guests.
On land, unauthorized trespassers were only discovered very seldom in the prohibited area. After a brief explanation, in most cases they left the area without delay. Due to the repeated low water levels, disturbances caused by water sports enthusiasts illegally entering the low water area were kept very much in check.

3.1.3 Special visits

On May 21, 2006 Member of the State Parliament Andreas Hoffmann visited the conservation area with a delegation from the German Christian Democratic Party (CDU), and on September 19, 2006 a visit was received by representatives of the parliamentary group of the German Liberal Democratic Party (FDP).

3.2 Scientific research

3.2.1 Current and completed research

Plant counts were performed by employees of the NABU Centre Wollmatinger Ried (cf. 1.2).
A survey of avifauna was performed by employees of the NABU Centre Wollmatinger Ried and the Lake Constance Ornithological Bird Group, which involved regular counts of waterfowl populations and mapping of breeding birds (cf. 1.3).
Entomological studies were performed by E. Konzelmann (beetles), M. Herrmann (aculeates), E. Klein and A. Krismann (butterflies), A. Lehmann (dragonflies) and Dr. W. Münch (ants).
A study commissioned by the Freiburg Government Headquarters into the possibility of deploying a mulcher should provide at least provisional interim findings by this winter.

3.2.2 Scientific publications

- FRANKL, ROBERT, S. WANNING, R. BRAUN (2005) „Quantitative floral phenology at the landscape scale: Is a comparative spatio-temporal description of „flowering landscapes“ possible?“ Journal for Nature Conservation 13, 219-229
- HERRMANN, MIKE, E. KLEIN (2005) „Das Wollmatinger Ried am Bodensee“ *(The Wollmatinger Ried on Lake Constance”* in „Der Rhein – Lebensader der Region“ *(The Rhein – Artery of the Region)* Herausg. F. Klötzli et al.
- HERRMANN, MIKE (2005): „Neue und seltene Stechimmen aus Deutschland *(New and rare aculeates from Germany* (Hymenoptera: Apidea, Sphecidea, Vespidea)“ Mitt. Ent. V. Stuttgart Jg. 40, 2005
- KLESS, JÜRGEN & U. KLESS (2005): „Ergebnisse der Exkursion 2002 der Arbeitsgemeinschaft südwestdeutscher Koleopterologen (Teil 1)“ *(Results of the 2002 Excursion of the Southwest German Coleopterologists)* , Mitt. Ent. V. Stuttgart, Jg 40, 2005

4. Site description, legal status

In September 2006, a certificate of exemption was issued to the shipping authorities by the Administrative District Office of the Bodensee District with the agreement of the Administrative District Office of Konstanz which, in contravention of Lake Constance shipping regulations, permits kite surfing on certain sections of the lake. One of the areas set aside for kite surfing is in the Gnadensee district and borders directly onto the protected area. Due to the considerable remote effect and the immense disturbance kite surfing will exert on water fowl, this move may be expected to entail a considerable negative impact on the conservation area.

5. Site management

5.1 Improvements made

5.1.1 Ecological action

During the year under review, complete maintenance of around 120 hectares of flood litter and tall sedge meadow were undertaken by order of the nature conservation authorities (Administrative District Office of Konstanz) by farmers using large-scale equipment. The NABU took charge of maintaining, largely manually, the sensitive areas of the sea wall and zones containing highly endangered species totalling around 38 hectares of litter and low-fertility meadow and sedge areas. In addition, this winter for the second time a mulcher was used on a total of 2 hectares of land.

The high-fertility common "Zügwiesen" (18.5 hectares) was mown at the beginning of June and the end of August 2006. In the green bridge areas and on other meadows rich in nutrients, and litter meadows showing symptoms of eutrophication, NABU thinned the vegetation by mowing over an area of 10 hectares.
Cattle grazing (6 hectares) on the "Lange Züge" common was continued with 9 Highland breeding heifers. From the beginning of June to mid-September, steps were taken to combat all neophyte occurrences (**Canadian golden rod**, *Solidago canadensis*, **late golden rod**, *S. gigantea*, **policeman’s helmet**, *Impatiens glandulifera* and

Jerusalem artichoke *Helianthus tuberosus*) between one and three times by manual pulling up or limited-area mowing.

5.1.2. Species protection

To establish permanent cultures, seed material of the **bug orchid** (*Orchis coriophora*) and **marsh gladioli** (*Orchis palustris*) were taken and sent to three companies specializing in orchid cultivation. Initial germination success has been achieved with both species. Seed material was also taken from the **globe daisy** (*Globularia punctata*). The survival cultivation program is progressing well in the botanical garden at the University of Konstanz.

5.1.4 Field equipment

The access footbridge to the observation platform at the Ermatingen Basin was repaired by order of the Freiburg Government Headquarters. In September and October 2006, the observation platform at the Hegne bathing beach and clamping site underwent repairs. As a final stage of the program, the observation platform at the Ermatingen Basin will be renovated in the autumn of 2007.

5.2 Site management

5.2.4 Infringement of regulations and damage: Legal action

At the beginning of January 2006, Allensbach Council spread gravel on the shore by the camp site of around 3 cm in thickness. Areas covered by the gravel included glowing habitats of the beach meadow. Thanks to decisive intervention by the Lower Nature Conservation Authorities, this was removed again with as much care as possible over the course of the following weeks.

In the spring of 2006, infringements by individual professional fishermen against the Untersee Fishing Regulations in the most sensitive of the reed zones (Schlauch and Reichenaudamm) necessitated repeated intervention on our part with the Fishing Supervisory Authorities of the District of Thurgau (cf. Chapter 2.2). As a consequence, inadmissibly installed bow nets were removed and the fishermen involved prohibited from spreading nets in the nature conservation area.

Marked disturbances by air traffic, in particular by airships and helicopters, once again led to major consternation amongst the bird population. Thanks to an initiative by the Member of the Baden-Württemberg State Parliament Andreas Hoffmann (who witnessed a serious disturbance by an airship on May 21, 2006) a written undertaking was received from ZLT Zeppelin Luftschifftechnik GmbH & Co KG to the effect that air ship pilots would be instructed not to fly over the Wollmatinger Ried nature conservation area in future. Following a repeated incidence of an air ship flying over on September 12, 2006, the company was reminded of its undertaking and in response promised to investigate the incident.

II. INFLUENCE OF THE AWARD OF THE EUROPEAN DIPLOMA OF PROTECTED AREAS

Particularly within the framework of deliberation processes such as that surrounding planning the rerouting of the B 33 road, the European Diploma often provides a decisive arguing point in obtaining a decision in favour of nature conservation concerns.

III. PROGRESS IN COMPLIANCE WITH EUROPEAN COUNCIL RECOMMENDATIONS

By order of the Freiburg Government Headquarters, the NABU Institute of Landscape Ecology and Nature Conservation has developed a suggestion for a monitoring system. Unfortunately this does not take into account either the substrate dynamics in the shallow water zone or aspects of fish ecology.

Contrary to initial estimates, the plans relating to rerouting of the B 33 road in the section from the railway track to the Kundlebild junction does after all take into account the current border of the protected area. Concerns relating to impairment of the FFH areas as a result of road building in the buffer bones of the Wollmatinger Ried nature reserve remain in place, however.

In response to repeated coercion, the Air Traffic Control Authorities have in the meantime ordered that the Wollmatinger Ried nature reserve be marked in the aviation map for Konstanz airport. There is no corresponding entry made in the actual airport map. However, primarily it is entry of the protected area in the official ICAO aviation map which is most urgently required in view of the permanent disturbance by aircraft. Only in this way will it be possible to achieve better protection of the sensitive waterfowl reservation.

To extend and reorganize the car park at the Hegne camp site, a solution has been found which protects important wet grassland areas in the nature reserve and excludes additional use as an “overflow car park”. These areas have been renaturalized and cultivated as wet grassland.

The future of the Wollmatinger Ried Nature Conservation Centre remains uncertain. The rental agreement for the currently used area is due to expire in 2008 and to date despite considerable efforts no assurances have been given regarding a succession arrangement.

Completion of the informative signage system commissioned by the Freiburg Government Headquarters is expected to be delayed until the summer of 2007.

Steps to extend the conservation area to the national border have not as yet been undertaken. As these areas are part of FFH area 8220301 and EU bird sanctuary 8220401, at the very least maintenance and development plans should be drawn up and implemented to allow developmental errors to be prevented (cf. chap. 4.).

4.2 ECOCAMPING

What is the aim of ECOCAMPING?
The most important aim is the improvement of environment protection, nature conservation, safety, quality and qualification of the entrepreneurs and their staff, as well as an image improvement in politics and Civil Service. Ultimately, ECOCAMPING aims to help the whole business to more success.

How long has ECOCAMPING existed?
The association has been active since 2002; before, ECOCAMPING was a project of the international Lake Constance Foundation, which started the project in 1998.

Who are ECOCAMPING?
ECOCAMPING is a registered association, whose members are mostly camping associations and environmental organisations. The state associations of camping site entrepreneurs in Bavaria, Lower Saxony, Brandenburg and Baden-Württemberg are founding members, also the Lake Constance Foundation and the ecotourism network ECOTRANS.

Where has ECOCAMPING been active so far?
There have been ECOCAMPING projects at Lake Constance, in Baden-Württemberg, Bavaria, Lower Saxony, Schleswig-Holstein and Brandenburg. Currently, 136 camping businesses are awarded with the ECOCAMPING ENVIRONMENTAL MANAGEMENT.

In the moment also 12 campsites in South Tyrol, Italy, 20 campsites in North Rhine Westphalia and 20 campsites in Rheinland-Pfalz and Saarland in Germany are introducing the system. Totally 52 ECOCAMPING Candidates.

ECOCAMPING is also partner in the European Leonardo project “Train to Ecolabel” and is responsible for the EU-Ecolabel for camping sites in Germany (marketing, training and audits).

What does an ECOCAMPING project include?
A project usually concentrates on a particular region, e.g. Bavaria or Lake Constance. Aim of the project is the introduction of environmental and quality management on camping sites. The participants are camping sites of the respective region, who together attend six workshops on environmental management, waste, energy, water/ cleaning, site design and safety. Each camping site receives at least two individual on-site counsellings. Workshops and counsellings ensure that each camping site can introduce an appropriate environmental management. The project is concluded by the awarding of the camping sites, who have introduced a working management system. These businesses then become member of the ECOCAMPING network, to which they contribute in a small financial amount on an annual basis. Certified camping sites are promoted by ECOCAMPING e.V. through brochures, on the internet, or on fairs. At least every three years another counselling by an ECOCAMPING consultant is done on site.

Who can participate in ECOCAMPING?

In principle, every camping site can participate. A successful participation does not depend on size, number of permanent or tourist guests, type of business or previous activities in environmental and quality management. ECOCAMPING does not require costly investments, but rather responds flexibly to the possibilities of the entrepreneur and the business. The consultants make suggestions, but the camping sites decides if, when and how the measures are implemented.

The participation is possible within a regional group of businesses or on an individual basis.

What are the advantages for a participating camping site?

- Improvement of image and acceptance, also with public authorities
- Improvement of the overall organisation, through environmental and quality management
- Enhancement of customer satisfaction
- Cost reduction (energy, water, waste)
- Improvement of work safety
- Qualification of managers and staff trough ECOCAMPING workshops
- Enhanced publicity through ECOCAMPING public relations
- Exchange of experience with and insight into other camping businesses
- Competitive advantage through ECOCAMPING award

What are the advantages for guests?

- Linking of environment protection and convenience
- Cost reductions help to keep prices stable
- More environmental education and nature experience programmes
- Natural site design and maintenance enhance quality of the stay
- Guest information (timetables, environment-friendly leisure activities, etc.)
- Health protection (e.g. avoidance of automatic air freshener sprays, as the contents are suspected to contain carcinogenic substances)
- Guest surveys ensure close contact to the customers and help to enhance the overall quality of the stay

What are the advantages for camping associations?

- ECOCAMPING facilitates dealing with politics and public authorities, e.g. also ministries
- Strengthening of the position of the association within the overall tourist context
- Enhancement of own public relations through use of subsidies and public relations of ECOCAMPING e.V.
- Better satisfied members, because ECOCAMPING is an attractive service for them
- Topics from the workshops can also be used to improve attractiveness of association meetings

Where to get more information about ECOCAMPING?

ECOCAMPING e.V.
Blarerstr. 56
D- 78462 Konstanz

Tel. +49 7531 28257 0
Fax +49 7531 28257 29
info@ecocamping.net
www.ecocamping.net

4.3 Tourism and Environment: Conjoint Projects of Tourism and Environmental Protection Organisations

Tourism, with approximately 10 million overnight stays, around 350 million Euro gross turnover per year and circa 15,000 full-time jobs, is among the most significant economic factors in the Lake Constance region (figures = only German Lake Constance region). About 27 million day-trippers (vacationers plus day guests) visit the region each year, mainly in the months of July to mid-September.
During the past years, the Lake Constance region had a slight increase in overnight stays – in average the guests stay 5,5 days (3,2 days in Germany in average.)These day guests are undertaking outings above average in number and in length; their average length is 8.7 hours (German average = 8 hrs.) and the average amount of kilometres covered is 91 (German average = 70 km). 85% of these vacation and recreational trips are undertaken by car.
The lake and its harbour regions are the most important magnet for vacation guests and locals in their leisure time. 60 % of the annual visitors are concentrated on the ten most attractive places for outings. These visitors cause important environmental problems especially in the field of traffic. Up to now, the measures to inform and sensitise these visitors have been inadequate.
The introduction of the “Bodensee Erlebniskarte“ as an all-inclusive-card by the “Internationale Bodensee-Tourismus GmbH” could have been a valid groundwork for touristic mobility which protects the environment, but up to now train and bus systems are not properly added to the package. In 2001 the Lake Constance Foundation (Bodensee-Stiftung) created “BodenseeClick“, a web-based information system, which for the first time was able to combine public transportation schedules with destinations in the international region of interest for tourists. Unfortunately the Internationale Bodensee Tourismus GmbH (Lake Constance Tourism Assosciation) did not assume the management and continuation of BodenseeClick.
One of the few successful projects towards environmentally friendly tourism is the ECOCAMPING-Project initiated by Lake Constance Foundation. Within ECOCAMPING, the Lake Constance Foundation developed an environmental management system for camping sites, oriented according to the EU-EMAS Eco-Audit Scheme. ECOCAMPING started in 1999 with 14 camping sites around Lake Constance. Now 49 camping sites in Baden-Württemberg and Bavaria are participating in this project and camping sites in other regions will start in 2003/2004 to create ECOCAMPING working groups.
As a favourite venue for water recreation, Lake Constance has at present 55,000 officially registered watercrafts, two thirds of which with an engine. Recreational facilities such as buoy fields, harbours and jetties, but also buildings and parking lots take up

about 45 km of the lakeshore in Baden-Württemberg alone. A further 30 km are used by beaches, camping grounds and lakeshore walkways. Along with the structural changes in and resulting damage to the shore zone and the shallows, the sport and recreational activities cause disturbances and damage to the sensitive animal and plant populations.
Particularly the lake's shallow bays are favourite places to anchor boats or for bathing, but are preferred habitats of endangered plants and animals, as well. Today, the most valuable shore regions and shallows are closed to water sport or recreation either temporarily or throughout the year.

Lessons learned

- In order to support ecologically sound mobility in tourism, attractive fees are necessary. A first required step is the introduction of an international "Lake Constance Day Ticket" which would be valid within all public transportation systems in the Lake Constance area.
- In order to reduce the burden of mobile recreational traffic, the public routes leading from the area around the lake to the lakeside communities must be greatly improved.
- No introduction of new tourism infrastructures on the shore of Lake Constance
- The environmental quality of accommodation and recreational facilities should be improved by the introduction of environmental management systems and incentives.
- The linking and the exchange of experiences among sustainably working tourism business should be promoted cross-border.

Key lessons of relevance for other lake regions:
Lately tourism has been considered to be the best answer to all problems. It is, however, recommended not to overestimate the positive effects of tourism but to be aware of possible negative effects. The international tourism is a short-lived, sensible and extremely competitive economy sector, susceptible to trends and all kinds of crisises. Currently environmentally sound tourism offers exceed the demand.

A long term tourism development planning with regular monitoring of the efficiency is necessary.

Promotion of environmentally sound and socially acceptable tourism: recognised Eco-label, i.e. European VISIT-Standard (www.yourvistit.info), environmental management systems (EMAS, ISO 14001), Soft-Mobility-Concept (www.soft-mobility.com).

Destination Monitoring: What is required for implementing sustainability policies in tourism is knowledge about the impact of tourism at global and local level and policies and measures designed to respond to this impact. Therefore it is necessary to analyse the process of tourism and to use indicators which show how this process is affecting sustainability within a specific area in a positive or negative way. Within the LIFE-VISIT Project, ECOTRANS developed a set of indicators for tourism destinations including process indicators for sustainability policy, environmental performance indicators

(transport, land use and biodiversity, energy, water, waste), social and cultural performance indicators and economic performance indicators.
Further information: www.yourvisit.info.

Information and sensitisation of locals and guests by pointing out interactions (e.g. regional agricultural products and the preservation of the landscape), environmentally sound offers (your choice makes the difference), providing tips for environmentally friendly and socially acceptable behaviour etc.

Entrepreneurs should get interested in sustainable tourism activities. A good example is ECOCAMPING, an environmental project for camping grounds. This project has been running since four years very successfully and will be extended within the next years. A whole branch of trade throughout Germany became interested in this topic. It is crucial to plan such projects for the long term. The time frame of the enterprisers has to be taken into account as well – they will only be ready to cooperate during the off-season. By combining technical advice, workshops and a wide public relations work these projects could also work other lake regions.

Boating/Water Sports

Recreational and professional boating must employ the highest standards of current environmental technology i.e. biocid-free underwater coatings and emissions-free or low-emissions motors. Navigational infrastructure must be established in accordance with the needs of nature and the landscape, i.e. no extension of the harbours along Lake Constance and the realisation of the Lake Constance Model (Bodensee-Leitbild)

Key lessons of relevance for other lake regions:
All aspects mentioned for Lake Constance are also relevant for other lakes!

4.4 Solar Boat

Floating classroam
In 2002, the Lake Constance Foundation (Bodensee-Stiftung) and the Allianz Environmental Foundation (Allianz Umweltstiftung) developed the school education programme “Floating Classroom”.
Within the scope of this programme, teachers and pupils have the opportunity to get to know Lake Constance, its natural environment aboard the solar ferry “Helio”. The object-lessons aboard the boat, during which the pupils are strongly encouraged to make discoveries on their own or in small groups, motivate a scientific-ecological teaching framework. The two hour lesson combines the topics of energy, limnology, water conservation and geography, each with respect to the Lake Constance region. Apart from these more scientific subjects, the pupils are also informed about important shipping practices, such as on board safety and navigation.

5. Day Four: Sustainable Agriculture: Marketing, Energy and Landscape Protection

5.1 Reichenau Island - Production and Marketing of High-Quality Vegetables

Comprehensive material and information have been given to all participants.

5.2 The Organic Farm Müllerhof

The Müller Farm is run on ecological and environmentally friendly principles. The farm itself can be divided into six fields of activity: animals, grain cultivation, landscaping, tourism, energy, farm shop and butchery ("Urvieh Ferdinand"). All the expected farm animals live on the Müller Farm, including cows for milk and meat production, pigs for meat production and chickens for egg production. All animals are butchered in the farm's own butchery and the foodstuffs are subsequently sold in the farm's own shop. Various cereal species are also cultivated on the farm, including spelt, emmer and einkorn. Therefore the shop stocks a wide range of foodstuffs ranging from bread and cereals, eggs, sausages and meat to milk products and cheeses. For tourists the farm offers a "hay-hotel", which is similar to a youth hostel, only that the guests sleep in hay-beds. This hotel is open all year round. The Müller Farm also operates a biogas plant, which uses biomass from agricultural and landscaping activities and turns it into bio-gas. This plant generates sufficient energy to meet the energy requirements of the entire farm. In addition to this renewable energy generation, all farm vehicles run on rape-seed oil. So far sufficient rape-seed oil is not produced by the farm itself and is bought from local producers. However, plans are made to expand the farm so it can become completely energy self sufficient.

5.3 Grazing Project Constance

1. <u>The Current Situation in the Region</u>
   - The understanding for the links between farming, cultural landscape, regional food production and conservation is lost more and more.
   - Grassland cultivation has become a problem in the region of Constance. More and more areas are not cultivated further, which has a negative effect on the overall appearance of the landscape and the appeal for tourists.

   In order to use and care for these areas again sustainably, the Grazing Project Constance was founded in spring 2000.

2. <u>"What happened so far"</u>
   - 38 „cow-godfathers" support the project
   - approx. 68 hectares of grassland are cultivated on the Constance Gemarkung
   - Together with two new farms and a master butcher, a new butchery for meat processing and sale was established. The new farm butchery, with its own rooms for slaughtering, carving and processing, "Urvieh Ferdinand" was

opened in November 2004 by district chief executive Frank Hämmerle (www.urviehferdinand.de).

- The city of Constance commissioned a study titled “feasibility study for the future plans of the farm education centre on the Constance Gemarkung”. The conclusion was that an implementation at the edge of Constance-Allmannsdorf would have good chances for success.
- Numerous guided tours are evidence of much public interest

3. Support & Awards

Since the start of the project in spring 2000, the project has received three awards:

In 2003, the Constance grazing project was chosen, together with three other projects from Baden-Württemberg, as model scheme of the *Ministry of Agrarian Regions (Ministerium Ländlicher Raum).*

In 2002, the project received an award within the “naturally regional” (“natürlich regional”) competition from the *German Society for Rural Conservation (Deutschen Verband für Landschaftspflege)*

In 2000, the project’s first year, an award was received from the Lake Constance Agenda 21, an institution of the international Lake Constance Conference, for the idea of “cow-godfathers within the grazing project”

In the past, many public figures and institutions (e.g. Landtag representatives, Deutsche Umwelthilfe etc.) have campaigned for the establishment of a „farm education centre“ in Constance. The project receives particular support from the City Administration Constance.

Content related focal points

A) Agriculture

Extensive use of grassland (preservation of the countryside) with a herd of “Hinterwäldler” mother-cows. Originally, the “Hinterwälder” were bred in the Black Forest region and are an endangered cattle species. In addition, further endangered farm animals (sheep, birds, etc.) are to be kept on the farm for conservation and viewing purposes.

B) "Farm education centre"

A place for people of all ages. A place where one has the opportunity to experience the theoretical and practical aspects of farming, nature and food production and to understand their contexts. This can occur through guided tours of the farm and lectures, or through practical work such as helping with the animals, wood processing or the harvesting of fruit and hay.

Of course this offer is directed to outside groups as well. Overnight accommodation can be found in the Youth Hostel Constance, which is approx. 5 min walk from the farm. The Youth Hostel management is open for collaborations of any kind.

C) "Open Farm Gate"

an open offer to the population of Constance: located at the city's outskirts, next to the recreational area of Hockgraben/Jungerhalde, the farm offers the possibility of experiencing local farming.

D) "Rescue Station"
Together with the SAVE Foundation Constance, the farm is to be the first "Rescue Station" in all of Europe. Stocks of endangered farm animal species can be provided for here in order to secure their existence in the short term.

4. The next steps

For the farm an outline building application was handed in August 2003. A planning application followed spring 2004. The first phase of construction was completed in 2006, when the building works on the dwelling house and stable were complete. The construction of a seminar room and a vacation apartment are planned for 2007.

Further Information:

Ute Paluch & Thomas N. Schumacher
Mainaustr.185, 78464 Konstanz
Tel: 07531/361635-2 Fax 361635-3
Email: KBA.Schumacher@t-online.de

or

Stadt Konstanz
Fachbereich Umwelt + Agenda 21
Martin Wichmann
Untere Laube 24, 78459 Konstanz
Tel: 07531/900-506, Fax: -526
Email: wichmannm@stadt.konstanz.de

5.4 Farmers Market Constance – Innovative Marketing of Regional Food

The farmer market in Constance is a grocery store run by a consortium of farmers from nearby Constance. It enables direct marketing of products produced in the region. The main advantage for the producers are higher prices for their products compared to the sale to an intermediary. The concept of the store has been explained on site. The chances and challenges for the shop have been discussed with regards to strengths and weaknesses of different product ranges and main competitors.

6. Day Five: Sustainable Management of a tourist hotspot on an Island – Island Mainau

Comprehensive material and information have been given to all participants. For any additional information about the sustainable management of Island Mainau, please visit: http://www.mainau.de/#.

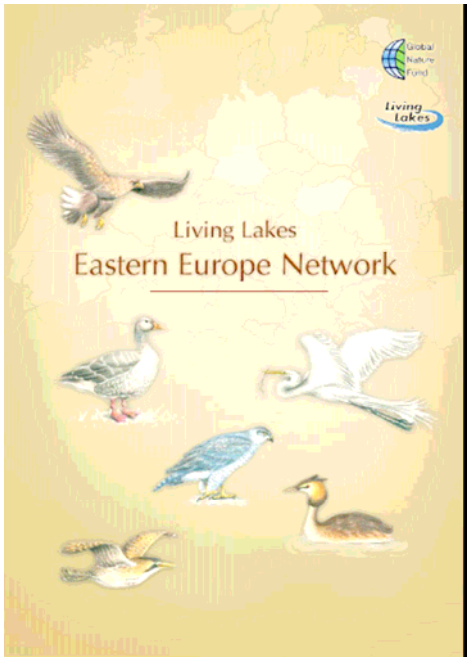
7. Conclusions

Considering the feedback of the participants in the final evaluation that was carried out with the help of evaluation sheets, the training course was a full success. In this evaluation sheet we asked to give a rating (--; -; 0; +; ++) regarding each activity and general aspects like organisation, schedule, accommodation etc. About 60% of the ratings were ++, about 35% + and about 5% 0. None of the activities had a special high or low ranking compared with the other activities. The reason for different ratings seemed to be the content of the activities. Depending on own professional fields (tourism, fishery, conservation etc.) some of the activities were of higher, other of lower interest for the participants.
In general, all participants emphasised the high value of project visits with the possibility to intensively discuss with the initiators and beneficiaries of the projects.

Finally, we would like to thank the presentators and the participants for the lively discussions and for the positive outcome of the first training course.

8. Websites of Organisations and Places Visited

- www.globalnature.org
- www.bodensee-stiftung.org
- www.radolfzell.de
- www.mainau.de
- www.igkb.de
- www.friedrichshafen.de
- www.mue25.de
- www.konstanz.de
- www.bodenseesolarschiffahrt.de
- www.fokusnatur.com



9. Programm

Day One: Tuesday, May 22nd
Introduction to the international Lake Constance region

	Topic	Speaker
Morning	***Arrival of Participants,*** *Self-Check in to Hotel* *Adler and Hotel Krone* *both in the city-center of* *Radolfzell and* *Lunch on your own*	
15.30	**Start of Training Course:** **Official welcome by the** **City of Radolfzell** Venue: Carl Duisberg Centrum Fürstenbergstr. 1 78315 Radolfzell (5-Minutes Walk from the hotels)	Mr Dr Jörg Schmidt, Lord Mayor, City of Radolfzell

16.00	**Welcome and Training Course Programme Overview**	Mr Udo Gattenlöhner, Executive Director, Global Nature Fund Mr Patrick Trötschler, Project Manager, Bodensee-Stiftung
16.15	**General Information about Lake Constance and the international region** Environmental Protection at Lake Constance. Cooperation between NGOs, administrations and the private economical sector Questions and Discussion	Mr Udo Gattenlöhner, Executive Director, Global Nature Fund Mr Patrick Trötschler, Project Manager, Bodensee-Stiftung
17.30	Short walk or public bus ride to the Dinner venue	
18.30	**Dinner at Strancafé Radolfzell hosted by the Kurbetriebe Mettnau and the City of Radolfzell** Strandbadstrasse 102 Radolfzell	Mr Helmlinger, Head of Mettnau-Kur Mr Christoph Stocker, Head of Environmental Department, City of Radolfzell
21.00	Walk back to hotels	

Day two: Wednesday, May 23rd
Management of water, lakeshore and communities

	Topic	Speaker
8.00	Departure from the hotel Adler to Langenargen	
9.30	At "Seenforschungsinstitut" **Sustainable Development of cities at lakeshore, example of the City of Friedrichshafen** also Observer in the EU-Project Managing Urban Europe Questions, discussion	Mr Dr Tillmann Stottele, Head of Environment and Nature Department, City of Friedrichshafen
11.00	**Visit of "Seenforschungsinstitut" - Lake Research Institute at Langenargen** Management of the fresh water body Bodensee (management and monitoring systems)	Mr Dr Heinz-Gerd Schröder, Head of Institute, Institut für Seenforschung Langenargen

12.30	Lunch at Restaurant Bach, Mühlstrasse 10, Langenargen	*Exkursion with Mr. Schröder with a break for Lunch*
13.30	**Exkursion around Langenargen with Lake Research Institute**	Mr Dr Heinz-Gerd Schröder, Head of Institute, Institut für Seen-forschung Langenargen
14.45	Departure to Radolfzell	
16.30	**Excursion – Lake shore renatura-tion at Radolfzell** costs, quality of life and biodiversity Meeting point at Umweltamt, Für-stenbergstr 1a, Radolfzell Questions and discussion	Mr Jürgen Pietsch, Ingenieur Büro Pietsch Mr Christoph Stocker, Head of Enviroment Department / Umweltamt, City of Radolfzell
18.45	Short Walk to the Gasthof Kreuz	
19.00	Dinner at Restaurant Gasthof Kreuz, Obertorstr. 3, Radolfzell	
21.00	Short walk back to hotels	

Day three: Thursday, May 24th
Sustainable Tourism and Visitor Management

	Topic	**Speaker**
8.00	Departure from the hotel Adler to the Wollmatinger Ried, nature protection area, near Constance	
8.30	**Exkursion - Nature protection area Wollmatinger Ried** Habitat management, visitors handling, Cooperation between NGOs and admini-strations Meeting Point Vogelhäusle Questions and discussion	Mr Eberhard Klein, Head of Naturschutz Bund (NABU) Wollmatinger Ried, German Society for Nature Conservation
11.45	Departure to the camp site in Allensbach	
12.15	Lunch at the camp site Allensbach, Bade- und Campingplatz Himmelreich Strandweg 35, Allensbach	Mr Richard Schiess, Holder of the campsite
13.00	**Visit of the camp site Himmelreich in Allensbach with ECOCAMPING** Environmental management (EMAS) for camp sites. Goals, strategies, current situation	Ms Carina Dambacher, Project Manager, ECOCAMPING e.V. Mr Richard Schiess, Holder of the campsite

14.30	Departure to Radolfzell Harbour	
15.30	**Exkursion - Solar boat trip** Tourism and environment: conjoint projects of tourism and Environmental Protection organizations Cycling nature tourism, nature tours by canoe and Environmental, Environmental Education, Focus Nature Fair Questions and discussion	Ms Marion Hammerl, Executive Director, Bodensee-Stiftung (Lake Constance Foundation) Ms Steffi Lampert Global Nature Fund Mr Josef Hanschur, Captain, BOSOG Bodensee-Solarschifffahrt
17.00	Arrival at Radolfzell harbour	
17.00	**Guided City Tour in Radolfzell** historical city walk, new town museum	Mr Rüdiger Specht, Nature-Educator, City-Museum, Radolfzell
18.30	Walk to the Restaurant	
18.45	Dinner at Yachtclub Radolfzell, Karl-Wolf-Str. 11, Radolfzell	
21.00	Departure, Walk back to hotels	

Day four: Friday, May 25th
Sustainable agriculture: marketing, energy, landscape protection

	Topic	**Speaker**
8.00	Departure from the hotel Adler to Reichenau Island, UNESCO-Island	
9.00	**Exkursion - Reichenau Island** Production and marketing of high-quality vegetables (environmentally sound production methods, quality management)	Mr Christian Müller, Managing Director, Reichenau Vegetables Asscociation
10.30	Departure	
11.00	**Visit of the organic farm Müllerhof** Organic farming, renewable energy	Mr Helmut Müller, Farmer
12.30	Lunch at Müllerhof	
14.00	Departure to Constance	
14.30	**Grazing Project Constance** Landscape conservation, butcher`s shop Urvieh Ferdinand	Mr Thomas Schumacher, Farmer
15.30	Departure to City Center Constance	
16.00	**Visit of Bauernmarkt Konstanz** Innovative marketing of regional food	Mr Heiner Fuchs, Chairman Bauernmarkt Konstanz

17.00	**Walk through the historic City of Constance** and free time for shopping	Paper-Guide Tourist Information Konstanz
	Evening at your disposal	
	Bus together or Train on your own (every 30 Minutes) back to Radolfzell	

Day five: Saturday, May 26th
Sustainable Management of a touristic Hotspot on an Island

	Topic	Speaker
9:00	Departure from the hotel Adler	
9:15	**Training Course Closing Meeting and conclusions** Evaluation of participants Lessons learned *Venue: GNF Conference Room, Fritz-Reichle-Ring 4, Radolfzell*	Udo Gattenlöhner, Executive Director, Global Nature Fund Marion Hammerl Executive Director, Bodensee-Stiftung
10:30	Departure to Mainau Island	
11:00	**Visit to the Mainau Island** Guided walking-tour throughout the Island of Mainau - Sustainable Tourism and Environmental Management	Guided walking-tour with Hostess from Mainau Island, Mr Udo Gattenlöhner, Executive Director, Global Nature Fund Ms Marion Hammerl Executive Director, Bodensee-Stiftung
12.30	Free Time on the Mainau Island	
13.30	Departure to Konstanz City and Railway-Station **End of Training Course**	
Afternoon	Saturday-afternoon at your disposal in the City of Konstanz or where you want to go from there (bus or trains from there to the airport of Zürich or to Radolfzell)	

Day six: Sunday, May 27th
Departure of participants

Departure and travel day

10. List of Participants

Institution	Name	Position	Country	Phone	E-Mail
Estonian Tourist Board	Ms. Monika Friedberg	Product Development Consultant	Estonia	0037 262 797 71	monika.friedberg@eas.ee
Estonian Nature Fund	Mr. Allan Kahar	Volunteer	Estonia	0037 255 945 320	Allan.kahar@gmail.com
CTC Peipsi Center for Transboundary Cooperation	Mrs. Eeva Kirsipuu	Administrator	Estonia	0037 273 023 02	eeva@ctc.ee
South-Estonian Tourism Foundation	Mrs. Marika Kool	Manager	Estonia	0037 274 422 71	mari-ka@southestonia.info
Municipality of Rongu	Mr. Aivar Kuuskvere	Governor	Estonia	0037 250 131 64	
Lake Balaton Development Coordiantion Agency (LBDCA)	Mr. Attila Magyarfalvi	Environmental Manager	Hungary	0036 843 133 46	mattila@balatonregion.hu
Lake Balaton National Park Directorate	Mr.AndrásLelkes	Park Ranger	Hungary		muratk@t-online.hu
Limnological Centre Vortsjärv Museum	Mr. Anu Metsar	Head	Estonia	0037 252 295 70	
Municipality of Rannu	Mr. Uno Rootsmaa	Governor	Estonia	0037 250 562 12	
Lake Balaton Limnological Research Institute	Ms. Bogárka Somogyi	Hydrobotanical Department	Hungary	0036 874 482 44	boglarka@tres.blki.hu
Assonciation of Lake Balaton Civil Organizations	Mrs. Erzsébet Székely	Environmental Expert	Hungary	0036 306 007 935	vandor12@fibermail.hu
CTC Peipsi Center for Transboundary Cooperation	Mrs. Lea Vedder	Director	Estonia	0037 273 023 02	lea@ctc.ee
Kormemäe Tourism Farm	Mr. Ivar Seidla	Owner	Estonia	0037 252 934 78	
PTPP “pro Natura”	Mr. Roman Guziak	Project Manager	Poland	0048 713 430 849	rguziak@pronatura.org.pl
Association of Municipalities and Counties of Barycz River Valley	Mrs. Agnieszka Prucnal	Head of the Office	Poland	0048 713 840 987	a.prucnal@sgipdb.pl
Friends of Przygodzice Society (and Ostrów County)	Mr. Robert Kaczmarek	Treasurer	Poland	0048 509 17 8 258	roboptak@interia.pl
Municipality of Zmigrod	Mr. Wieslaw Kras	Head of the agriculture and environment department	Poland	0048 713 853 057, 0048 501 54 9 698	ros@zmigrod.com.pl

Institution	Name	Position	Country	Phone	E-Mail
State Fish Farm "Milicz Ponds"	Mr. Ireneusz Głowacz	Head/Manager of Ruda Sulowska Fish Ponds Complex	Poland	004871 38 34 136	biuro@stawymilickie.pl
Municipality of Odolanow (and Barycz Valley Fundation)	Mrs. Agnieszka Karwik	Environmental Inspector	Poland	0048 627 331 581	agakarwik@gazeta.pl, inwestycje@odolanow.pl
PTPP "pro Natura"	Mr. Jerzy Zuber	Volunteer	Poland		
PTPP "pro Natura"	Mrs. Ewa Zuber	Volunteer	Poland		ewazuber@wp.pl