Activity Report 2011

WasserCluster Lunz – Biologische Station GmbH

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# Summary of the scientific activities at WasserCluster Lunz – Biologische Station GmbH

## Highlights of the year 2011

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## Scientific events and teaching at the WCL

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## Press release

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**Highlights of the year 2011**

In the year 2011 a major enlargement of the institute took place. The second building - the former Biological Station Lunz - was re-constructed and the official opening was in September 2011. Since the end of the year the 2nd building is in use and beside the 4th working group scientists from the partner universities will work there. Furthermore the selection for the 4th working group was successfully finalized and Dr. Robert Ptacnik will start as new working group leader in 2012.

In 2011 a new WCL seminar series was established presenting current research of the working groups at WCL and research of invited guest scientists.

**Research**

In 2011 19 research projects formed the basis for the aquatic ecosystem research addressing fundamental and applied research topics. Out of these, 11 projects were based on competitive funding sources from FWF (6 projects) and EU – FP7 (3 projects). In these projects 40 scientists and students were working and published 13 ISI referenced articles and 2 articles of other categories. The results have been presented in more than 20 presentations at several major international conferences, meetings and workshops. In total 3 Msc students graduated successfully and one international PhD student based on the research performed at WCL.

In line with the LTER research program at WCL, ExtremAqua, WCL joined the global network GLEON and a continuous research program focussing on hydrological extreme events (high flows) was established at the 3 sites (Oberer Seebach and Lake Lunz in the LTSER platform Eisenwurzen, and the Lobau and Orth floodplain in the Alluvial Zone Nationalpark Donau-Auen along the Danube River downstream Vienna) and will lead to first results to be published in the coming years.

**Education**

In 2011 21 courses took place at WCL, out of these 16 were university courses and 2 international postgraduate courses. In nine courses scientists of WCL were contributing or had a lead role in teaching. In total 681 students attended these courses and made WCL an important location for several university programs. Research – education – cooperation activities have been continued successfully in 2 projects with several schools and 2 courses were held establishing research based project weeks for schools.

**Other activities**

For the first time in Austria, WCL initiated the platform "Forum WASSER" that aims to connect aquatic research of Austrian universities and research institutes with a wide range of beneficiaries, including human health, political decision makers, drinking water supply, hydropower, etc. Forum WASSER is designed to address current issues of water as resource and habitat that require scientific and societal solutions. The first Forum WASSER united aquatic scientists, officials of drinking water supply and human nutrition, as well as policy makers. For 2012, another symposium of Forum WASSER is planned.
Public outreach

In 2011 more than 30 press releases (print media, TV and radio broadcasts) mentioning WasserCluster Lunz were recorded. A regular newsletter was published twice in 2011 and was established as regular information for the wider public. A new homepage was developed and launched in February 2012.
Projects

Ongoing projects

BERG (Biofilm and Ecosystem Research Group - Battin)

- PRIME (FWF, PI: Battin) 2011-2013, 400 kEur total budget,
- PRIMA (Marie Curie Fellowship, PI: Battin) 2011-2014; 170 kEur total budget
- Impact of gravel pit lakes (States of Lower Austria, Upper Austria, Styria; Forum Rohstoffe, PI: Battin, Hofmann, Kainz) 2008-2011, 421 kEur total budget, 135 kEur WCL
- Architecture of carbon flows through fluvial networks - ARCARNET (BMWF- FWF PI: Battin) 2009-2012, 540 kEur total budget

BIOFRAMES (Biochemical Functions: Research and Management in Ecosystems at multiple Scales - Hein)

- Tools for supporting the sustainable management of freshwater wetlands with special regards to their roles in drinking water supply, sanitation, livelihood, and ecological restoration - WETWIN (FP7, EC, WPL: Hein) 2008 – 2011, 2.4 mEur total budget, 280 kEur WCL
- ProFor (ETC, EC, PI: Hein) 2009 – 2011, 600 kEur total budget, 240 kEur WCL
- Natura 2000 (Gov. Lower Austria, EU Funds, PI: Hein) 2009 – 2011, 60 kEur
- Wespe (Sparkling Science, BMWf, PI: Hein) 2009 – 2011, 170 kEur total budget, 95 kEur WCL
- Floodplain restoration Lobau (Water management Vienna, PI: Hein) 2011, 200 kEur budget

LIPTOX (Lipid and Toxicology Research Group - Kainz)

- Ostarrichi Fisch – Identification of essential dietary constituents versus potentially toxic compounds in aquatic food webs, 2009 – 2011, 150 kEur, PI: Kainz)
- CARP - Diet effects on fatty acids and methyl mercury in common carp (FWF, PI: Kainz), 2008-2012, 270 kEur
- INTERACT (EU, PI: Kainz), 2011-2013, 31 kEur
- Impact of gravel pit lakes (States of Lower Austria, Upper Austria, Styria; Forum Rohstoffe, PI: Kainz, Hofmann, Battin), 2008 – 2011, 421 kEur total budget, 135 kEur WCL
- LIPTEMP – Temperature and diet effects on Daphnia lipids and fitness (FWF, PI: Kainz), 2009-2012, 287 kEur
- “Äsche” - Schwallbetrieb Drau/Möll (PI: Kainz), 2011, 24 kEur
- Food webs of riverine waterholes (Government of Queensland, PI: Kainz), 2011-2012, 50 kEur

**Joint projects**

- ExtremAqua Extension 2011 (BMWF, PI: Battin, Hein, Kainz) 50 kEur

**Working group profiles**

**BERG**

- 5 postdocs Mia Bengtsson, University of Stockholm
  Katharina Besemer, WCL / University of Vienna
  Nancy Burns (University of Edinburgh)
  Hannes Peter (Uppsala University)
  Gabriel Singer, WCL / University of Vienna

- 4 PhD students Christina Fasching, WCL / University of Vienna
  Iris Hödl, WCL / University of Vienna
  Karoline Wagner, University of Vienna
  Andreas Weihhartner, WCL / University of Vienna

- 5 MSc students Martina Adelboller, University of Vienna
  Franz Dunkl, University of Vienna
  Sabrina Hengsberger, University of Vienna
  Kristin Rath, University of Vienna
  Judith Rosentreter, University of Vienna

**BIOFRAMES**

- 2 postdocs Maren Striebel, WasserCluster Lunz / BOKU Vienna
  Peter Winkler, WasserCluster Lunz / BOKU Vienna

- 2 Senior researcher Walter Reckendorfer, WCL
  Gabriele Weigelhofer, WCL / BOKU Vienna

- 3 Research assistants Jennifer Fuchsberger, WCL
  Andrea Funk, WasserCluster Lunz
  Matthias Mair, BOKU Vienna
• 5 PhD students  Iris Baart, WCL / BOKU Vienna
    Elisabeth Bondar, WCL / BOKU Vienna
    Radhia Ideva, University of Vienna
    Stefan Preiner, WCL / BOKU Vienna
    Nina Welti, WCL / BOKU Vienna

• 6 MSc students  Manuel Felkl, University of Vienna
    Christina Gaitzenauer, BOKU Vienna
    Andreas Ganglbauer, University of Vienna
    Stefanie Schabhüttl, University of Vienna
    Iris Schönbrunner, University of Vienna
    Bernadette Teufl, University of Vienna

LIPTOX

• 1 postdoc  Apostolos Koussoroplis, WasserCluster Lunz

• 3 PhD students  Francine Mathieu, WCL / University of Vienna
    Julia Nußbaumer, WCL / University of Vienna
    Sebastian Schultz, WCL / University of Vienna

• 4 MSc students  Markus Böhm, University of Vienna
    Brigitte Koderbauer, University of Vienna
    Mariella Martinz, University of Vienna
    Katrina Zsifkovits, BOKU Vienna
Publications

ISI referenced journals

BERG


BIOFRAMES


LIPTOX

Taipale, S., Kainz, M., Brett, M. T. (2011): Diet-switching experiments show rapid accumulation and preferential retention of highly unsaturated fatty acids in Daphnia. Oikos. 120: 1674-1682


**Other publications**

**BIOFRAMES**


**Presentations and Seminars**

**BERG**


Battin, T.J. (2011): Stream biofilms: Structural beauty and consequences, INRA, Thonon-les-Bains, France

**BIOFRAMES**


Hein, T; Bondar-Kunze, E; Habersack, H; Pinay, G; Schiemer, F; Tritthart, M; Welti N. (2011): Restoration measures in large regulated rivers and their floodplains: potential effects on algal productivity and nutrient cycling. , River Corridor Restoration Conference - RCRC11, March 13 - 18, Ascona, Schweiz

Hein, T; Bondar-Kunze, E; Welti, N; Preiner, S; Tritthart, M; Weigelhofer, G; Pinay, G. (2011): Effects of changed hydrological connectivity on nutrient cycling of floodplains. , 2nd Biennial Symposium of the International Society for River Science ISRS, AUG 8-12. 2011, Berlin, GERMANY


Hein, T; Winkler, P; Douven, W; Sanon, S. (2011): Quantifying Ecosystem Service Trade-Offs: The Case Of An Urban Floodplain In Vienna, Austria. , Joint Meeting of the Society of Wetland Scientists, Wetland Pollutant Dynamics and Control (WETPOL), and Wetland Biogeochemistry Symposium, JUL 4-8, 2011, Prague, Czech Republic


LIPTOX


**Miscellaneous Activities**

**Completed PhD theses 2011**

BIOFRAMES

Radhia Ideva, “Nutrient Dynamics of the Kihansi River”. Vienna University (April 2011)

**Completed MSc theses 2011**

BIOFRAMES

Manuel Felkl „Nahinfrarotspektroskopie zur Charakterisierung von Sedimenteigenschaften im Nationalpark Donauauen“, Vienna University (March 2011)

Stefanie Schabhüttl “Combined effects of temperature and biodiversity on phytoplankton communities”, Vienna University (June 2011)

Iris Schönbrunner, “Impact of drying and re-flooding of sediment on the phosphorus dynamics of river-floodplain systems”, Vienna University (November 2011)

**Awards**

Nina Welti Centro Stefano Franscini Award

**Guest researchers/lecturers**

Dr. Michael T. Brett (January 2011)
Prof. Brian Moss, Univ. Liverpool (March 2011)
Prof. Alexander Wacker, Univ. Potsdam (April 2011)
Dr. Christoph Matthaei, Univ. Otago (June 2011)
Dr. Maguerite A. Xenopoulos (December 2011)

**Summer interns**

BIOFRAMES

Anna Hinterreither (Josephinum Wieselburg) – nominated for FFG internship Award
Leo Kirchmaier (Student BOKU Wien)
Rosalie Lorenz (HBLVA f. chem Industrie Wien) – nominated for FFG internship Award

**BERG**

Armin Hiessberger (Student TU Graz)
Daniel Lueger (HLUW Yspertal)
Anna Teufl (Student Vienna University)

**LIPTOX**

Christian Puhr (HLUW Yspertal)
Christopher Reichhold (HLUW Yspertal)

**Scientific events and teaching at the WCL**

**University courses**

19 – 21 January 2011: University of Vienna - class exercise “Meeresbiologie” – course no. 300218, leader Gerhard Herndl (16 participants)

28 March – 30 April 2011: University of Vienna – course no. 300315, leader Katharina Besemer (10 participants)


23 – 25 May 2011: University of Vienna - Umweltchemische Übungen – course. no. 270188, leader Franz Jirsa (10 participants)

7 – 10 June 2011: University of Vienna – Spezielle Kenntnis Schutzgüter – course no. 300173, leader Georg Grabherr (29 participants)

14 – 15 June 2011: University of Vienna – Seminar for Masters, Diploma and PhD-students in Genetics in Ecology - course no. 300724, leader Christa Schleper (25 participants)

20 – 24 June 2011: BOKU – „Einführung in die Hydrobiologie“ – course no. 812007, leader Thomas Hein and Gabriele Weigelhofer (28 participants)


13 – 24 August 2011: University of Vienna „Aquatische Biozönosen“ - course no. LV 300295 – leader Johann Waringer (10 participants)

26-30 September 2011: BOKU – „Fish ecological special course“ course no. 812306 – leader Günther Unfer (30 participants)

3 – 7 October 2011: BOKU - „Limnochemistry“ – course no. 812341– leader Thomas Hein (12 participants)

10 – 14 October 2011: BOKU – “Limnology” – course no. 812340 – leader Thomas Hein (14 participants)

10 – 14 October 2011: University of Vienna – „Übungen im Präparieren und Bestimmen von eiszeitlichen Tierresten” – course no. 300716 – leader Gernot Rabeder (17 participants)

17 – 19 October 2011: University of Vienna – “Diversität der Moose” – course no. 300658 – leader Harald Zechmeister (13 participants)

14 – 18 November 2011: University of Vienna – “Präparation von Eiszeittieren” – course no. 300716 – leader Gernot Rabeder (14 participants)

**Post-graduate programs and Research-education-cooperations**

22 – 27 May 2011: Lernzentrum Walz - course in Limnology - leader Iris Hödl (16 participants)

7 – 9 June 2011: HLFS Ursprung – course in Limnology - leader Gabriele Weigelhofer (26 participants)

3 June – 24 June 2011: International Post-Graduate Course in Limnology (IPGL) module “Microbial Communities & Ecosystem Functioning” - leader Iris Hödl (8 participants)

27 June – 01 July 2011: International Post-Graduate Course in Limnology (IPGL) module “Conservation and restoration ecology” - leader Thomas Hein & Nina Welti (8 participants)

26 June – 1 July 2011: Landesakademie/BOKU - MSc Course Management/Umwelt – leader Susanne Bäuerl (16 participants)

**Workshops and other activities**

18 – 19 January 2011: Workshop project “Profor”. Thomas Hein, Gabriele Weigelhofer

13-16 June 2011: Scientific Workshop of WCL Latitudinal diversity gradient and spatial / temporal turnover (Maren Striebel and Nina Welti) with guest researcher Robert Ptacnik and Radka Ptacnikova

13 – 14 July 2011: Workshop project “Profor”. Thomas Hein, Gabriele Weigelhofer

Press release


derStandard.at - 9 April 2011 – „Der Bach, ein Superorganismus“ - Profile on Tom Battin and his working group on their work with organic carbon

NÖN Nachrichten - April 2011 – „Forschungstransfer durch Beteiligung“

NÖN - May 2011 – „Jungforscher unterwegs“ – “young scientists” of Neue Mittelschule Eichgraben research the environment together with WasserCluster Lunz


ORF.at - 3 June 2011 – “Heimische Fische seit Fukushima sehr gefragt“ - a report of our domestic fish following the nuclear catastrophe in Fukushima

ecoplus - June 2011 - Profile on the WasserCluster Lunz

Bezirksblätter - 6 July 2011 - "Biologische Station erweitert" - reopening of the renovated Biological Station in Lunz


NÖN – August 2011 – „Höchste Qualität für Genussprodukt“

APA – August 2011 – „WasserCluster Lunz eröffnet Biologische Station“ – Open ceremony of Biologische Station (WasserCluster Lunz) on 11 September 2011

Kurier (NÖ West) - 5 September 2011 - "Forschen mit Postkarten-Image" - WasserCluster LUnz reanimates the "Ötscher“-region

Tips - September 2011 - "Wir haben nur den einen Planeten" - Interview of Thomas Hein about biodiversity

Die Presse am Sonntag - 11 September 2011 - "Rätsel Wasser Schwall, Fett und Biofilme“ - reopening of the Biological Station

NÖN - September 2011 - "Lunz ist Zentrum des Wissens ums Wasser“ – Biological station is the new centrepiece of WasserCluster Lunz

Bezirksblätter – September 2011 – „Rettung aus Lunz für unser Wasser – Biologische Station für Lunz“ – report about Biological Station Lunz

NÖN – October 2011 – „Australia goes Austria: Wenn Queensland in Lunz forscht“ – Research cooperation between Queensland and Lunz
NÖN – October 2011 – „Wasser ist unser kostbarstes Gut“ – Symposium of scientific Experts

Bezirksblätter Scheibbs – October 2011 – „Wasser für unsere Zukunft“ – First meeting to the symposium „Forum Wasser“

NÖN – October 2011 – „Wichtigkeit der Wasserqualität“ - Scientists and politicians discuss about water and future

noe.ORF.at – October 2011 – „Fischzüchter fordern mehr Forschung beim Futter“

ORF.at - October 2011 - "Forscher diskutieren Zukunft des Wassers" - Scientists and politicians discuss about water and future

TIPS - October 2011 - "Heute Probleme von morgen lösen" - Solve today problems of tomorrow

Bezirksblätter - November 2011 - "Junge Biologen als Forscher - Learning by doing" a secondary-school workshop at WasserCluster Lunz

NÖN – November 2011 – „Morphologie am Lunzersee“

Radiokolleg – September 2011 – Radio Interview of Thomas Hein (WasserCluster Lunz) about management of aquatic ecosystems.

NÖN – November 2011 – „EU für Generation 50+“ – Regionalmanagement Mostviertel invites to a discussion at WasserCluster Lunz

Die Presse am Sonntag - 13 November 2011 - "Reines Blut und Wasser“ - collaboration of Danube University Krems and WasserCluster Lunz

Die Presse am Sonntag – 13 November 2011 – „Labors in Lunz“ - Reopening of the Biological Station Lunz

Kurier – 28 December 2011 - „Der Karpfen ist besser als sein Ruf“