



Dear readers,

We are facing challenging times. The COVID-19-pandemic has been and is affecting many aspects of our lives, and requires alternative solutions in our everyday routines and working life. For a big collaborative project such as SeeWandel, for which cross-border cooperation is a central and essential motor, the past lockdown has led to massive restrictions. The work of the SeeWandel scientists was affected and limited by the rules and measures implemented because of COVID-19 by their research institutes and the countries in which they are based. The majority had no access to their research facilities, most field, lab and experimental work could not be carried out, and data processing operations had to be suspended. In addition, other work, including modelling and administrative work (accounting, reporting) was limited or not possible for some, as there was no access to resources and the respective software from outside the research institutes. This led to delays in the ongoing project work. Furthermore, the closed borders during lockdown and the various rules governing the use of communications software have made cross-border cooperation and the interaction with practice and stakeholders more difficult. Many events, for which a lot of work went into planning, had to be cancelled, some of which unfortunately cannot be made up for. Nevertheless, the positive examples must also be highlighted. Necessity is the mother of invention – in addition to home office, some could also operate small home labs. Some events were successfully held in other formats, despite difficulties due to different regulations on the use of communication software. Moreover, even virtual live broadcasting and participation in a sampling campaign in Lake Constance has been made possible for those who were unable to cross the border. We are in close exchange with Interreg as well as other stakeholders in order to assess and evaluate the consequences of COVID-19 for SeeWandel. The pandemic has profoundly changed the way we work, in some aspects also for the good. It is now up to us to draw on this experience for the future.

**We wish all of you much courage, strength and endurance in these times. Stay healthy.**

Piet Spaak (Project Leader) and Josephine Alexander (Project Coordinator)

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## News from the SeeWandel Project Management

SeeWandel was to exhibit at this year's Regional Garden Show Überlingen in Germany ([Landesgartenschau Überlingen](#)). Due to the COVID-19-pandemic, the Regional Garden Show Überlingen has been postponed until next year and will take place from the 9<sup>th</sup> April to the 17<sup>th</sup> October 2021. Around the same time (7<sup>th</sup> May to 12<sup>th</sup> September 2021), a garden show will also be held in Eppingen in Germany ([Gartenschau Eppingen](#)). The exhibition period for SeeWandel at the Regional Garden Show Überlingen in 2021 is likely to be similar to that originally planned for 2020, i.e. the period from the 13<sup>th</sup> to the 26<sup>th</sup> September 2021 with an opening ceremony on Thursday the 16<sup>th</sup> September in the afternoon. A final confirmation is still pending. The 6<sup>th</sup> Konstanz Science Night ([Lange Nacht der Wissenschaften Konstanz](#)), that was planned for the 4<sup>th</sup> July 2020, did not take place either. The event is postponed and will take place on the 14<sup>th</sup> May 2022.

With a heavy heart and given the developments regarding COVID-19 and the related measures/recommendations of the University of Konstanz and Eawag at the beginning of March 2020, we had to cancel the international research symposium "Resilience and Reversibility of Lake Ecosystems in a Changing World", that would have taken place from the 22<sup>nd</sup> to the 25<sup>th</sup> March 2020 at the University of Konstanz (main organiser: Research Training Group of the University of Konstanz "RTG R<sup>3</sup> - Responses to biotic and abiotic Changes, Resilience and Reversibility of Lake Ecosystems", with the participation of SeeWandel). Within the framework of the symposium, SeeWandel also planned a workshop with practitioners and stakeholders with the aim of fostering interaction and knowledge transfer between science and practice, with a specific focus on the development of the Lake Constance ecosystem.



© SeeWandel: Moderated panel discussion at the SeeWandel virtual workshop with practitioners and stakeholders on the 30<sup>th</sup> June 2020. Left to right (picture on the left) Piet Spaak (Eawag and SeeWandel project leader), Stephan Müller (FOEN and chair of the IGKB and SeeWandel advisory board), Karl-Otto Rothhaupt (University of Konstanz and chair of the SeeWandel thematic working group "Neozoa & Climate Change), and the two moderators Manfred Walser and Michael Baldenhofer on site at Eawag. The other panel participants Christine Schranz ("Bayerisches Landesamt für Umwelt", IGKB expert and member of the SeeWandel advisory board), Martin Grambow ("Bayerisches Staatsministerium für Umwelt & Verbraucherschutz" and IGKB delegate), Harald Hetzenauer (LUBW-ISF, SeeWandel deputy project leader and IGKB expert) and Roland Rösch (FFS-LAZBW and chair of the IBKF expert committee) took part virtually.

This workshop was held in a different format on the 30<sup>th</sup> June 2020 at Eawag Dübendorf (Switzerland). Delegates were invited from the International Commission of Lake Constance Water Conservation (IGKB), members of the International Lake Constance Fishery Commission (IBKF), the IGKB and IBKF expert committee, the IGKB section "Lake" and the SeeWandel Advisory Board, representatives of the Environmental Commission of the International Lake Constance Conference (IBK-U) and Interreg, and SeeWandel members.

The program included different input talks from the SeeWandel thematic working groups, the SeeWandel project leader and the chairs of the IGKB and IBKF expert committees, which were made available to the participants prior to the workshop. The workshop itself was conducted as a zoom conference, with the moderators and some of the panel participants on site at Eawag. A moderated panel discussion was held to discuss the possible outcomes resulting from SeeWandel and – as a consequence – the further procedure with regard to synthesis and knowledge transfer.



## A short contribution on the topic of resilience

### The many faces of resilience

(Markus Möst, Senior Postdoc, Molecular Ecology Group, University of Innsbruck)

Resilience is a term commonly used in the field of ecology, but also in social sciences and engineering. The word *resilience* is derived from the Latin *resilire*, which translates to *rebound*. In general terms, it describes toughness or the capacity of a system to recover from perturbations, as well as the ability of an object to spring back into shape. The history of the definition of the term *resilience* in ecology is rather complicated and its usage inconsistent, leading to some confusion in the field as reviewed by Hodgson *et al.* (2015). Holling (1973) defined *resilience* as the capacity of a system to *resist* change and maintain function in the face of exogenous disturbance. He contrasted *resilience* with *stability*, which he defined as the ability of a system to return to a stable state following disturbance. However, others, for example Grimm and Wissel (1997) and Pimm (1984), define *resilience* as the process of *recovery* following disturbance and not as the ability to *resist* disturbance in the first place. These two definitions are not mutually exclusive but differ in their focus and highlight different ecological phenomena. The former emphasizes the ability of a system to *resist* a shift to, under this definition, possible alternative states in the face of a usually ‘press-like’ disturbance (also known as ‘ecological *resilience*’). The latter puts the focus on a transient impact of the disturbance and the subsequent *recovery* of a system to its equilibrium regime (‘engineering *resilience*’). This definition facilitates quantification of resilience when disturbance is ‘pulse-like’, but it is not applicable for situations in which alternative stable states exist.

In most studies, the term *resilience* is used to represent *resistance*, *recovery* (sometimes referred to as *reversibility*), or both. In fact, systems can be more resilient because they recover with high elasticity and therefore short return time or because they are more resistant and do not change much upon disturbance, or both. In a system with high recovery, a nutrient pulse in a lake can for example result in an abrupt increase in biomass (i.e. a change in ecosystem state) followed by a rapid return to biomass base levels once the nutrients are used up. In a system with high resistance, on the other hand, the nutrient pulse will only result in a dampened change in biomass because nutrients are for example stored, absorbed or removed from the system. Consistently, Hodgson *et al.* (2015) recommend the “simultaneous consideration of *resistance* and *recovery* as measurable components that together represent *resilience*” and propose a bivariate representation of *resilience*. While verbal and graphical models of *resilience* and its components are quite intuitive, actually quantifying *resilience* and comparing *resilience* among real-world systems is much harder.

Ingrisch and Bahn (Ingrisch and Bahn, 2018; Bahn and Ingrisch, 2018) have adopted the bivariate concept of Hodgson *et al.* (2015) and Nimmo *et al.* (2015) and modified and extended it into a concept for comparable quantification of resilience. Their conceptual framework jointly consi-

ders the disturbance impact and the recovery rate, both after normalization to the undisturbed state of a system. Reconstructing the undisturbed state of a system, for example of a lake ecosystem prior to eutrophication or climate change, is therefore critical for resilience research but can be very challenging or even impossible in practice, in particular if the process covers several decades and/or research efforts are only undertaken after the disturbance events. A combination of long-term monitoring data, reconstruction of pre-disturbance conditions (e.g. sedimentology, ancient DNA), analysis of undisturbed, but otherwise comparable, reference systems, and experimental approaches can help to achieve a robust picture of the system status prior to disturbance. Such reconstructions ideally cover the physico-chemical as well as biological aspects of a system, require highly interdisciplinary approaches, and can best be achieved in large, multidisciplinary research programs. Such efforts will help our understanding of the factors and processes determining the resilience of a system and whether systems are in danger of shifting to an alternative stable state. The related concept of alternative stable states describes the situation when the disturbance has exhausted the *resilience* capabilities of a system that then cannot resist and/or recover anymore. The system may then cross a so-called tipping point and enter an alternative stable state, which is not reversed to the initial state when the disturbance is terminated. One of the most famous examples is the transition of shallow lakes from a clear, macrophyte-dominated state to a turbid, algae-dominated state. This state-shift happens in response to increased nutrient loads. These lakes persist in the latter state even when nutrient loads decrease again. Ecosystems are increasingly recognized as dynamic, fluctuating non-linear systems that may not return to previous conditions even if stressors are removed.

To conclude, *resilience*, while at first sight an intuitive and versatile concept, has many different facets and definitions and it is helpful to clarify the applied definition to avoid confusion. Quantifying resilience is far from trivial but crucial to better understand and manage ecosystems in a changing world.



© Jana Isanta-Navarro: Markus Möst (University of Innsbruck, SeeWandel) and Dominik Martin-Creuzburg (University of Konstanz RTG R<sup>3</sup>) sub-sampling sediment cores from Lake Constance in the lab of Martin Wessels at the ISF Langenargen. Lake sediments represent a chronological record of environmental changes and past ecosystem states that can be leveraged to study resilience.





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## News from the SeeWandel Thematic Working Groups

Fishes 	Pelagic Zone 	Neozoa & Climate Change 	Littoral 
<u>P. Spaak</u> (Chair)  P1   P3 (SeeWandel/RTG R <sup>3</sup> )   P2   P4   L12   L13 (SeeWandel)	<u>M. Möst</u> (Chair) D. Straile (Deputy)  P5   P6   P7   P8   L10 (SeeWandel)   A3   B2 (RTG R <sup>3</sup> )   U Konstanz	<u>K.-O. Rothhaupt</u> (Chair)  L9 (SeeWandel/RTG R <sup>3</sup> )   L10 (SeeWandel)   PhD H. Zhang (UK)   Hydra	<u>K. Schmieder</u> (Chair)  P1   L9 (SeeWandel/RTG R <sup>3</sup> )   P7   L10   L11   L12   L13 (SeeWandel)
Practice Representative:  B. Lundsgaard-Hansen, N. Schotzko	Practice Representative:  L. Taxböck	Practice Representative:  P. Teiber-Sießegger, R. Schick	Practice Representative:  C. Schranz, B. Engstle

## Changes in personnel

Barbara Scholz (scientist in the SeeWandel sub-project L12) gave up her position for personal reasons at the end of 2019. Steffen Bader was appointed in March 2020 as a replacement. We congratulate Sarah Gugele (PhD student in the SeeWandel sub-project P1) on her new position as an expert on fisheries biology in the Fisheries and Water Ecology Division of the State Government of Vorarlberg ("Amt der Vorarlberger Landesregierung"), which she took up in October 2019. She will nevertheless continue her work for SeeWandel on a 50 % basis until the end of October 2020. We also congratulate Elizabeth Yohannes (scientist in the SeeWandel sub-project P8 and project co-leader of L9) on her new position as Senior Scientist in the Max Planck Institute of Animal Behaviour, which she will start in October 2020, as well as Stuart Dennis (scientist in the SeeWandel sub-project L10) on his new position as expert in scientific IT and research data management at Eawag, starting in January 2021. Elizabeth will remain involved in SeeWandel, and Stuart will remain partially involved in the supervision of Linda Haltiner (PhD student in the SeeWandel sub-project L10). Maike Sabel, PhD student in the SeeWandel sub-project L9 successfully defended her PhD thesis, and will start a new job in an Environmental Planning Office in October 2020. Congratulations Maike! With a heavy heart, we have to inform you that Stefan Borngraeber will give up his PhD position in the SeeWandel sub-project L11 in November 2020, in order to take up a full-time position as a project engineer at GeoCockpit UG Schlierbach (Germany). Even though we are losing an expert in remote sensing with Stefan, we are also happy for him and congratulate him on this new position. Stefan plans to continue his work in SeeWandel as time permits and to finish his PhD.

## Scientific articles published

Sabel, M., R. Eckmann, E. Jeppesen, R. Rösch and D. Straile. 2020. Long-term changes in littoral fish community structure and resilience of total catch to re-oligotrophication in a large, peri-alpine European lake. *Freshwater Biology* 65 (8), 1325-1336. DOI: 10.1111/fwb.13501. [Here link to article.](#)

Beninde, J., M. Möst and A. Meyer. 2020. Optimized and affordable high-throughput sequencing workflow for preserved and non-preserved small zooplankton specimens. *Molecular Ecology Resources*. DOI: 10.1111/1755-0998.13228. [Here link to article.](#)

Haltiner, L., C. Hänggi, P. Spaak and S.R. Dennis. 2019. Sex in crowded places: population density regulates reproductive strategy. *Hydrobiologia* 847, 1727-1738 (2020). DOI: 10.1007/s10750-019-04143-7. [Here link to article.](#)

Gugele, S.M., J. Baer and A. Brinker. 2020. The spatiotemporal dynamics of invasive three-spined sticklebacks in a large, deep lake and possible options for stock reduction. *Fisheries Research*. [Here link to article.](#)

In addition, six manuscripts have been submitted to scientific journals.

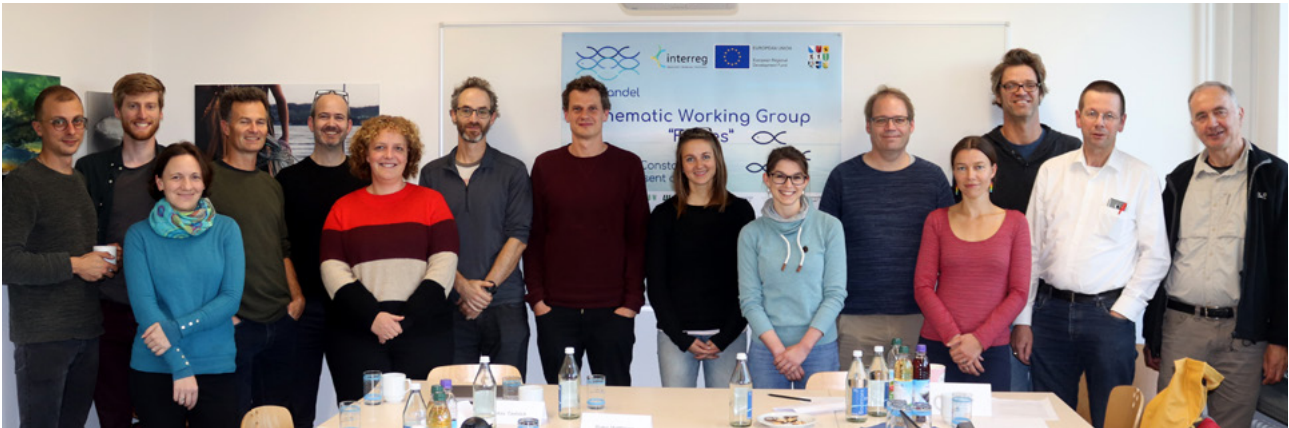
## Fishes

The thematic working group "Fishes" met with the newly appointed practice representatives, Bänz Lundsgaard-Hansen (chair of the IGKB expert committee and also member of the SeeWandel advisory board) and Nikolaus Schotzko (member of the IBKF expert committee), as well as other representatives from practice, local authorities and agencies on the 4<sup>th</sup> November 2019 at the Fisheries Research Station of the Agricultural Centre for Cattle Farming, Grassland Management, Dairy Farming, Game and Fisheries Baden-Württemberg (FFS-LAZBW) in Langenargen (Germany) to discuss SeeWandel research updates and first results. Further discussions were also held on project synthesis and knowledge transfer, exchange and collaboration with practice, public relations, and current and potential collaborations within SeeWandel and across sub-projects with researchers of the Research Training Group R<sup>3</sup> from the University of Konstanz, whose next cohort of 12 PhD students started in spring 2020 and among whom there are also some working on fish topics.

The intensive Lake Constance fish community assessment, that was successfully carried out in autumn 2019 by researchers of the FFS-LAZBW and the Fisheries Administration of the State of Baden-Württemberg (Germany), received a great deal of media coverage (see <https://seewandel.org/en/media/#mitteilungen> for a selection). A total of 29 fish species were recorded, one more than in the last comparable fishing campaign in 2014. The most common species was perch, which was strongly represented in all size classes. Benefiting from rising temperatures in the context of climate change, catfish catches have increased significantly compared to five years ago. The main species caught in the open water of the lake were whitefish, stickleback, perch and bleak. The deepwater charr, which until recently was believed to be lost, was regularly found in catches across Upper Lake Constance and was first identified again in individual catches in 2014. In addition, the local newspaper "Stuttgarter Zeitung" reported on the research work of the FFS-LAZBW and the SeeWandel project in an article "[Verdrängt der Stichling den Felchen?](#)" published on the 14<sup>th</sup> October 2019.

The extreme year 2018 has affected the Lake Constance ecosystem, especially the fish fauna. Recent lake dynamics showed pelagic whitefish to have almost disappeared in 2019. In addition, the further spread of the quagga mussel is a cause for concern. Under the given conditions regarding resources, core objectives and research orientation, SeeWandel can only partially integrate present developments in Lake Constance into the current research work.

Piet Spaak has taken over the chair of the thematic working group “Fishes” in March 2020. The thematic working group “Fishes” plans to meet again at the end of the year. For further information, please contact [seewandel@seewandel.org](mailto:seewandel@seewandel.org).



© SeeWandel: Participants of the SeeWandel thematic working group “Fishes” meeting on the 4<sup>th</sup> November 2019 at the FFS-LAZBW in Langenargen.

## Pelagic Zone

The first meeting in the new constellation of the thematic working group “Pelagic Zone” took place on the 5<sup>th</sup> December at the University of Konstanz (Germany). The internal part of the meeting in the morning focused on the cross-project exchange with corresponding pelagic sub-projects of the Research Training Group R<sup>3</sup> from the University of Konstanz and other external associated research projects (e.g. of Eawag, the University of Konstanz and ETH Zurich). Further topics of the afternoon session were – besides presentations of additional results of the SeeWandel pelagic sub-projects – resilience, for example with regard to the *Daphnia longispina* complex (e.g. “genomic resilience”) and resilience from a paleolimnological point of view. Also potential links between the invasion of the quagga mussel and changes in the composition of *Daphnia* in Lake Constance (occurrence and increasing abundance of *D. cucullata* since 2016) were discussed as well as subsequent consequences for the food web. Participating in the meeting for the first time was the newly appointed practice representative Lukas Taxböck (member of the IGKB section “Lake”), who presented the “view from the practice” with regard to the transfer of knowledge and know-how from science to practitioners, decision makers and other stakeholders, and the general public.

In November 2019, the “Seespiegel” (IGKB periodical) in its 50<sup>th</sup> edition portrayed Thomas Posch (Professor at the University of Zurich) as the first expert in a series of planned portraits of experts involved in the SeeWandel project (title of the article [“Dickschädel und Bakterien-Spezialist”](#)). A portrait of Tania Holtzem (PhD student in the SeeWandel sub-project P5) was published in the following Seespiegel issue (title of the article [“Die Biologin und der Wasserfloh”](#)).

Furthermore, the regional newspaper “Südkurier” reported in an article [“Wie widerstandsfähig ist der Bodensee? Forscher wollen das hochkomplexe Ökosystem besser verstehen”](#) (published on the 15<sup>th</sup> December 2019) about the SeeWandel project and about the participation of the Institute for Lake Research (LUBW-ISF) in the ongoing research work. The work of Markus Möst on *Daphnia* in Lake Constance was reported in the article [“Kleine Ursache, grosse Wirkung”](#), published in edition 1/2020 of the magazine “Zukunft Forschung – Das Magazin für Wissenschaft und Forschung der Universität Innsbruck”. On the 23<sup>rd</sup> September 2020, the local newspaper “Neue Zürcher Zeitung” reported in an article [“Thomas Posch erforscht die giftige Burgunderblutalge. Er sagt: „Der Zürichsee ist kein Swimmingpool, sondern ein Ökosystem“](#) about toxic cyanobacteria and impacts of climate change on fish and plants in Lake Zurich. The long-term research in Lake Zurich of the Limnological Station in Kilchberg and Thomas Posch’s research on *Planktothrix rubescens* was also the subject of the television series [“Traumseen der Schweiz: Herbstgeschichten am Wasser”](#), broadcasted on the 3<sup>rd</sup> August 2020 in 3sat. The issue of the occurrence of toxic burgundy blood algae in Swiss lakes is currently receiving a lot of attention from the local media.

The thematic working group “Pelagic Zone” plans to meet again on the 11<sup>th</sup> November 2020 in Zoom. For further information, please contact [seewandel@seewandel.org](mailto:seewandel@seewandel.org).



© SeeWandel: Participants of the SeeWandel thematic working group “Pelagic Zone” meeting on the 5<sup>th</sup> December 2019 at the University of Konstanz.

## Neozoa & Climate Change



The thematic working group “Neozoa & Climate Change” met for a special meeting on Quagga mussels on the 27<sup>th</sup> February 2020 at the University of Konstanz (Germany). Research updates were presented on the ongoing Quagga mussel projects by Linda Haltiner and Hui Zhang, as well as a summary of Karl-Otto Rothhaupt on current knowledge and gained experiences about Zebra and Quagga mussels in Lake Constance. Several guests were present at this meeting: Andreas Marten (University of Education Karlsruhe) with an input talk “Dispersal of the quagga mussel along the river Rhine and associated backwaters”, Markus Zeh (Canton Bern) with an input talk “Quagga mussels in Bernese lakes”, Sylvie Flämig (m|u|t) with an input talk “Evaluating approaches for Swiss-wide measures against Quagga – Ideas for a project with FOEN (BAFU)”, Thorsten Rennebart (LUBW-ISF) with an input talk “First ideas and results about a quagga monitoring strategy that covers the whole Lake Constance”, and Lukas de Ventu-



ra (Canton Aargau). This shows the broad interest, particularly among cantonal and federal authorities in Switzerland, in the Quagga mussel invasion and in possible ways of stopping or delaying it in Switzerland. In addition, Stuart Dennis presented first ideas for a scientific article on the invasion and expansion of Quagga mussels in Lake Constance and Switzerland, targeted for Aquatic Invasions, and invited all participants to contribute.

Furthermore, at this meeting, Piet Spaak reported about monitoring Quagga mussels beyond Lake Constance, and what can be learnt from research in the Great Lakes (USA). Different proposals regarding monitoring strategies and next steps to be taken were discussed together with the guest speakers as well as the representatives from several authorities. Also based on the SeeWandel project work on the Quagga mussel, the FOEN sent a letter to the cantonal and shipping authorities asking them to take initiatives to prevent the spread of Quagga mussels. One of the theoretically easily implementable measures is for boat users to clean their boat before taking it to and using it on another lake. Due to the ecological and economic impact of the Quagga mussel invasion, this issue has received much media attention (see <https://seewandel.org/en/media/> for a list on reports in newspapers, TV and radio).

The Quagga mussel research within the framework of this thematic working group benefits from the close collaboration between the University of Konstanz and Eawag. A collaboration between these institutions on the Quagga mussel was recently extended to other lakes. An experimental test installation in Lake Constance to study colonisation and local adaptation of mussels to water depth was also set up in Lake Geneva, with the goal of comparing results from both lakes.

The thematic working group "Neozoa & Climate Change" plans to meet again at the end of the year. For further information, please contact [seewandel@seewandel.org](mailto:seewandel@seewandel.org).



© SeeWandel: Participants of the SeeWandel thematic working group "Neozoa & Climate Change" meeting on the 27<sup>th</sup> February 2020 at the University of Konstanz.



Prof. Élisabeth M. Groß (Université de Lorraine) gave a talk on “The multifaceted role of macrophytes in lakes” at the last meeting of the thematic working group “Littoral” on the 22<sup>nd</sup> November 2019 at the Institute for Lake Research of the State Agency for Environment Baden-Württemberg (ISF-LUBW) in Langenargen (Germany). In addition, insights were shared and discussed from ongoing SeeWandel research on resilience of submerged macrophytes, impacts of environmental changes on the littoral fish and macrozoobenthos communities, colonisation pattern of Quagga mussels and ecology and diversity of sticklebacks in Lake Constance. Further discussions were held on a list of applied questions of the newly appointed practice representatives, Christine Schranz (member of the IGKB expert committee, the IGKB section “Lake”, and the SeeWandel advisory board) and Bernd Engstle (member of the IGKB expert committee), on topics such as mowing of macrophytes due to more frequent low water levels in summer, effects of neophytic mussels on macrophytes, impact of increased driftwood on biocoenoses, effects of aqua-parks, dredging and sediment extraction.

The thematic working group “Littoral” plans to meet again on the 13<sup>th</sup> November 2020 in Zoom. For further information, please contact [seewandel@seewandel.org](mailto:seewandel@seewandel.org).



© SeeWandel: Participants of the SeeWandel thematic working group “Littoral” meeting on the 22<sup>nd</sup> November 2019 at the LUBW-ISF in Langenargen.



## Collaboration with RTG R<sup>3</sup>

SeeWandel closely collaborates with the Research Training Group “R<sup>3</sup> – Responses to biotic and abiotic changes, Resilience and Reversibility of lake ecosystems” of the University of Konstanz (Germany), funded by the DFG since April 2017. For more information, [please visit the website](#). The next cohort of 12 RTG R<sup>3</sup> doctoral candidates has recently started its work. SeeWandel is in close contact with the RTG R<sup>3</sup> to foster continued exchange between the two projects, for example by including relevant new sub-projects in the work of the SeeWandel thematic working groups. It is planned to offer the new RTG R<sup>3</sup> doctoral candidates the opportunity to present their research plans at the next SeeWandel retreat in January 2021.

From the 30<sup>th</sup> September to the 1<sup>st</sup> October 2019, the 1<sup>st</sup> Women in Aquatic Sciences Networking Event (WASNE, <https://www.rtg-resilience.uni-konstanz.de/events/wasne/>) took place at the University of Konstanz (Germany), organised by the RTG R<sup>3</sup> of the University of Konstanz in cooperation with the „Wassernetzwerk Baden-Württemberg“. The event was targeted at women researchers in aquatic sciences from PhD level to junior professor/junior group leader, offering a platform for discussion and scientific exchange, and bringing early career woman researchers into contact with experienced scientists, with the aim of increasing their networks. SeeWandel contributed to the organisation and realisation of this event, where women SeeWandel researchers also presented their work.



© RTG R<sup>3</sup>: Participants of the Women in Aquatic Sciences Networking Event (WASNE) on the 1<sup>st</sup> October 2019 at the University of Konstanz.



## SeeWandel Agenda

Date	Event	Place
November 11, 2020	TG “Pelagial” Meeting	Zoom
November 12, 2020	Steering Committee Meeting	Zoom, University of Hohenheim (Germany)
November 13, 2020	TG “Littoral” Meeting	Zoom, University of Hohenheim (Germany)
December 31, 2020	End of 4 <sup>th</sup> Interreg reporting period  Each SeeWandel partner institution: prepare reports	
January 21 – 22, 2021	SeeWandel Retreat	Eawag Dübendorf (Switzerland)
January 21 – 22, 2021	SeeWandel Advisory Board Meeting	Eawag Dübendorf (Switzerland)



Date	Event	Place
February 28, 2021	<p>Deadline of 4<sup>th</sup> Interreg report</p> <p>Reports of each partner institution have to be validated &amp; submitted by lead partner</p>	



## Collaboration with Lake Constance Commissions and Practice

SeeWandel collaborates closely with the International Commission of Lake Constance Water Conservation (IGKB), the International Lake Constance Fishery Commission (IBKF) and the Environmental Commission of the International Lake Constance Conference (IBK-U). Members of the IGKB and IBKF participate in the SeeWandel thematic groups and, in doing so, foster exchange of expertise and knowledge transfer. In order to intensify the transfer of knowledge, the SeeWandel project leader Piet Spaak continues to regularly participate and present the project developments in the meetings of the commissions mentioned above, as well as at other events with representatives from practice and scientists working in administration of agencies at the cantonal or federal government levels.

Similar to previous workshops, amongst others with representatives of the IGKB, a workshop with members of the IBKF was held in January 2020. At this meeting, first results of the SeeWandel project were presented, including the current state of knowledge regarding the genome of the extinct and other Lake Constance whitefish, the origin and characteristics of stickleback, the autecology of stickleback and the resulting fisheries management options, the large fish fauna survey in Lake Constance in autumn 2019, and bioenergetics modelling of the stickleback and whitefish populations in Lake Constance. Questions to the project posed in advance by the IBKF were also discussed.

Gaëlle Pauquet, IGKB head office and specialist for aquatic biology at the Canton St. Gallen, will work part-time on behalf of the IGKB (likely starting in October 2020) on developing targeted products, resulting from the SeeWandel project results, tailored to specific audiences. This will be done in close cooperation with the SeeWandel management team and the respective SeeWandel scientists.



### Editorial Note

SeeWandel is a European research project involving seven research institutions: Swiss Federal Institute of Aquatic Science and Technology ([Eawag](#)), Fisheries Research Station Baden-Württemberg ([FFS](#)) of the [LAZBW](#), Institute for Lake Research ([ISE](#)) of the ([LUBW](#)), and the Universities of [Hohenheim](#), [Innsbruck](#), [Konstanz](#) and [Zurich](#). SeeWandel is represented by the project management and its project leader PD Dr. Piet Spaak, Eawag, Überlandstrasse 133, CH-8600 Dübendorf, [seewandel@seewandel.org](mailto:seewandel@seewandel.org).

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