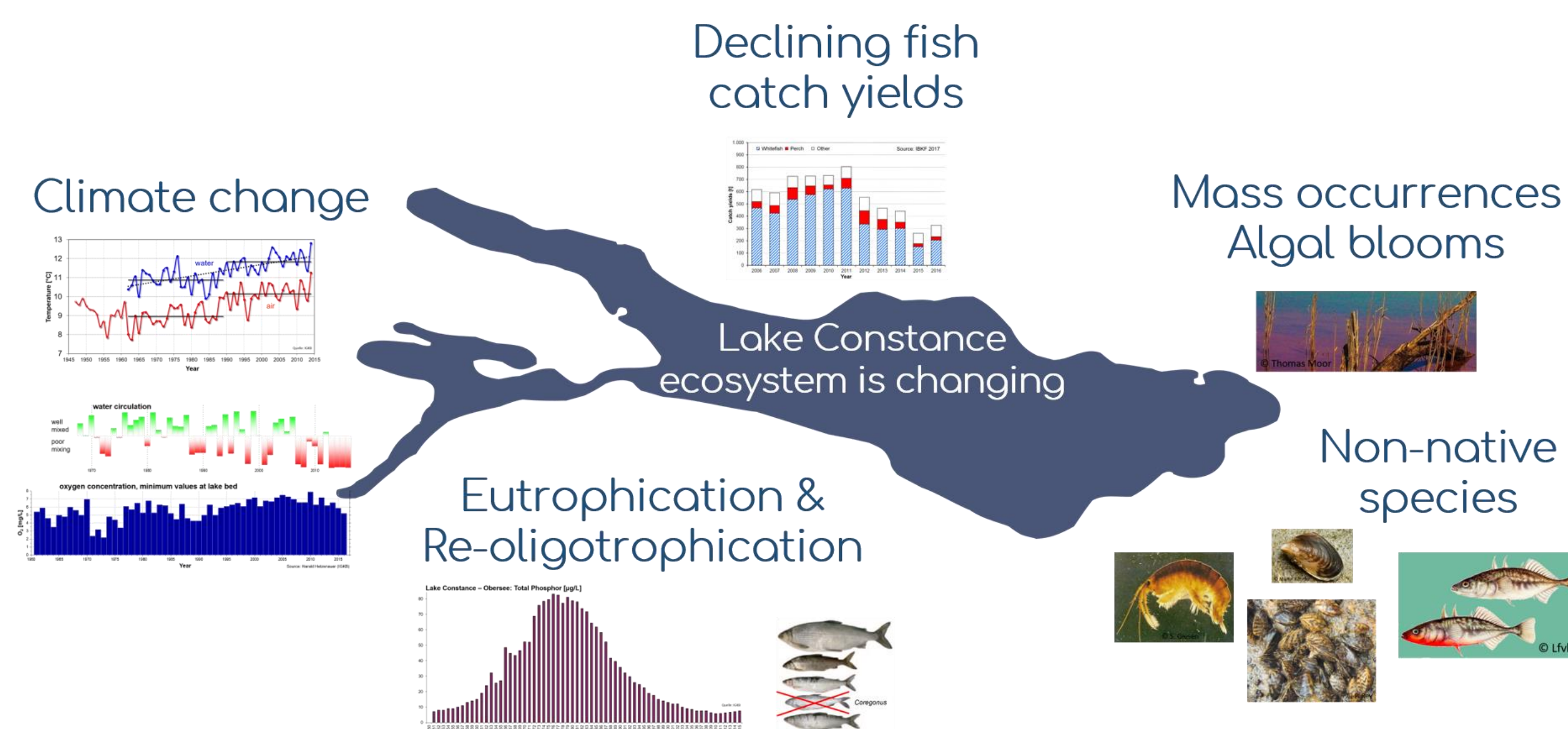


SeeWandel: Life in Lake Constance – the past, present and future



Background

- Lake Constance is one of the largest Alpine lakes on the border between Germany, Austria & Switzerland
- An important drinking water reservoir & ecosystem, significant for tourism, recreation, fishing, nature conservation and energy production
- Undergone extensive changes in the past century



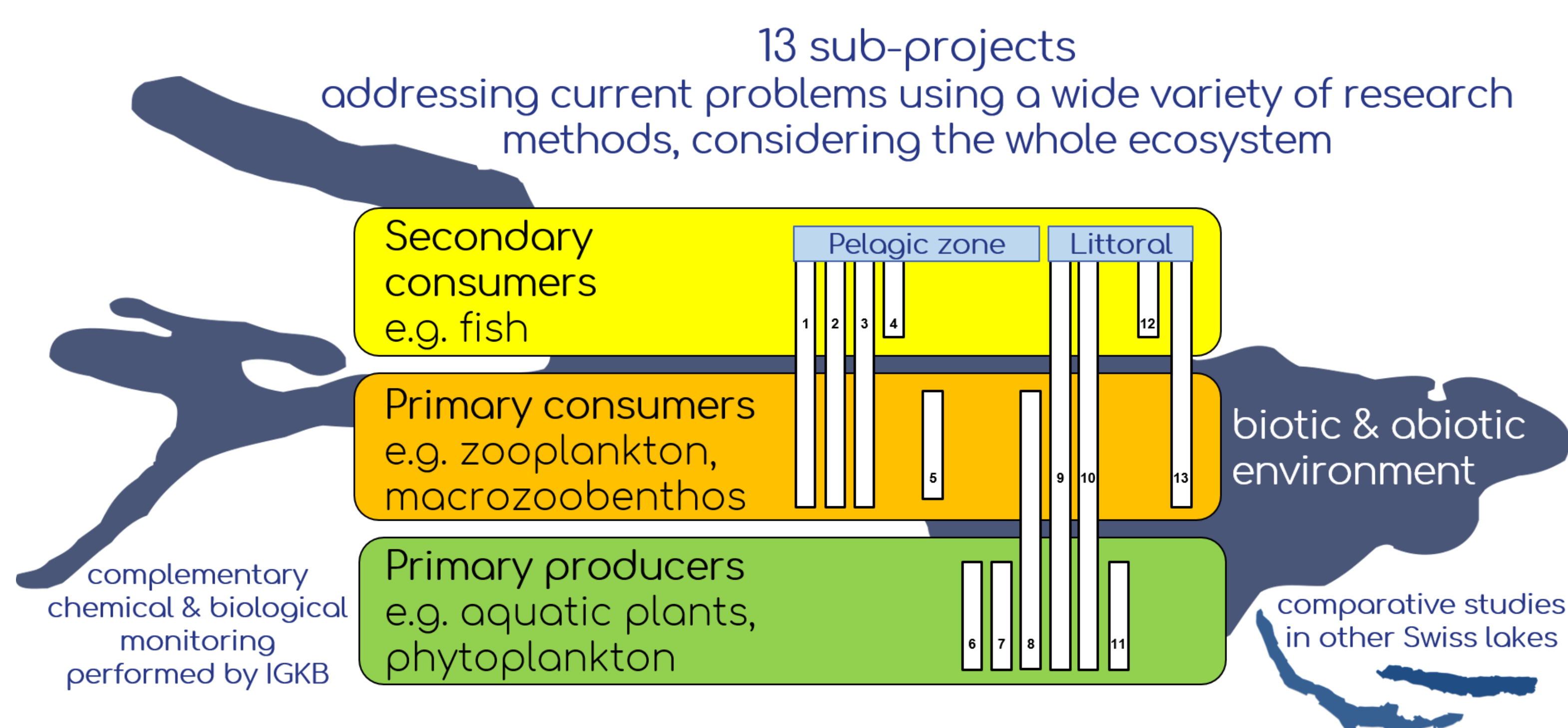
Severe pollution in 1950-80s, with irreversible changes to aquatic communities. Climate change & non-natives (> 37 at present) are potential threats to natural biodiversity, changing food webs & affecting ecosystem functioning, as well as affecting economic aspects (e.g. catch yields of fisheries, maintenance costs of municipal water suppliers).

SeeWandel investigates

Effects & significance of nutrient decline, climate change, non-native species & other stress factors for the Lake Constance ecosystem, its biodiversity & functioning, & utilisation of lake resources by people.

Project aims

- To improve process-based understanding of pelagic & littoral zone, and understanding of interaction between them
- To improve understanding of food web & functioning of Lake Constance ecosystem
- To evaluate ecosystem resilience, potential changes in ecosystem services & future problems
- To provide basis for water management & politicians to make scientifically informed decisions about future of Lake Constance
- To continuously engage with stakeholders, agencies, local authorities & organisations to incorporate diversity of views, needs & goals in successful development of the project



Fact sheet

- Official Start January 2018
- Project duration 4.5 years (until end of June 2022)
- 7 research institutions in 3 countries (Germany: Uni Konstanz, Uni Hohenheim, FFS-LAZBW, ISF-LUBW; Austria: Uni Innsbruck; Switzerland: Eawag, UZH)
- Total budget 5.65 million Euros
- Funding: EU Funds (Interreg Alpenrhein-Bodensee-Hochrhein / EU Fund for Regional Development) covering 40% of CH-budget & 60% of EU-budget, complemented by other external resources & in-kind contributions

Organisation & Sub-projects

Project Management (Eawag, Piet Spaak, Josephine Alexander)	
Advisory Board	
BAFU & IGKB (Müller, chair), BAFU-AÖL (Romang), IBKF (Thiel), IGKB (Lundsgaard-Hansen, chair of experts), IBK-U (Fäh), Eawag (Wüest, Eggen), U Konstanz (Rothhaupt, Peeters), ISF (Hetzenauer), FFS (Brinker), Repr. States & cantons (CH: Leib, A: Walser, BY: Schranz, BW: Hetzenauer), U Innsbruck (Möst), U Hohenheim (Schurr), UZH (Pernthaler, Posch)	
P1: The stickleback in Lake Constance-Obersee (Brinker et al., FFS-LAZBW)	L9: Resilience of the littoral community of Lake Constance: effects of neo-zoo, trophic- & climate change (Rothhaupt et al., U Konstanz)
P2: Bioenergetic modelling of fishing strategies on the fish communities of Lake Constance-Obersee (Brinker et al., FFS-LAZBW)	L10: Competition between filter feeders in Lake Constance (Spaak et al., Eawag)
P3: Effects of re-oligotrophication, climate change & invasive species on fish-zooplankton interactions & population dynamics of whitefish (Straile et al., U Konstanz)	L11: Resilience of submerged macrophytes in the littoral zone of Lake Constance (Schmieder et al., U Hohenheim)
P4: Reconstruction of the genome of the extinct Lake Constance whitefish & characterisation of the genetic bases of habitat adaptation to the profundal zone (Feulner et al., Eawag)	L12: Development & application of methods for the assessment of fish communities in large & deep lakes (Brinker et al., FFS-LAZBW)
P5: <i>Daphnia</i> resilience – comparison of genomic & functional resilience of the water flea population under eutrophication & oligotrophication in Lake Constance, Lake Zurich & Lake Walen (Möst et al., U Innsbruck)	L13: Ecology & diversity of stickleback in Lake Constance (Matthews et al., Eawag)
P6: Reasons for the growth of <i>Panktothrix rubescens</i> in Lake Zurich & Lake Constance – comparison of long-term data, experimental approaches & genetic analyses (Posch et al., UZH)	Cooperation with RTG R ³ of University of Konstanz
P7: Distribution of planktic communities in Lake Constance-Obersee (Wahl, Hetzenauer et al., ISF-LUBW)	
P8: Resilience of Lake Constance from a paleolimnological point of view (Straile et al., U Konstanz)	Chemical & biological IGKB Monitoring

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