

**Eva Jakobsson**

## **Lake Vänern: Exploring the History of Europe's Third Largest Lake**

After Ladoga and Onega the Swedish Lake Vänern is Europe's third largest. This body of water is by no means one of the classic water history sites such as the Nile, the Rhine, or the Columbia. It is a prosaic lake, which so far has not been placed in focus by historians. About 10 percent of the Swedish population takes its drinking water from the lake, at the same time it is a recipient of waste water from industries, farms, and settlements. Lake Vänern is also Sweden's largest hydro power reservoir in volume. In the new deregulated and commercialized energy market, the energy stored in Lake Vänern is linked to the European energy market.

Histories of lakes are created out of the uniqueness of each body of water's societal setting, its historical heritage, and its down- and upstream relationship. Even the hydrological characteristics of the drainage basin are essential to understanding the unique development of the history of a lake.

In my research, I have identified the flooding risk as a driving force behind the growing knowledge base for the lake. It was the apparent, but unpredictable water-level fluctuations (the lake rises for a couple of years and often falls again in flowing years) that have puzzled scientists over the centuries. An important turning point in the history of what I refer to as "Understanding Lake Vänern" took place during the eighteenth century when the lake was placed in its comprehensive drainage basin, stretching out and into the Norwegian mountains. By its diffusion it contains different types of drainage regimes, making it seem like the water levels of the large lake were unpredictable.

At the RCC I will work on some twentieth-century themes: the transport lake—an opening to the sea; the energy lake—a hydropower reservoir and the complex uses of the lake; the political lake—environmentalists and the water quality of the lake; and the future lake—climate change scenarios.

In an analysis of the twentieth-century science history of Lake Vänern, I focus on two main tracks: water quality and water quantity. The first, water quality, deals with the discovery of human created changes in the flora and fauna in the lake. This environmental theme was initiated by the classic discussion on the disappearing salmon—a relict salmon species that uses Lake Vänern as its sea and that is migrating up the tributaries. Was the disappearance explained by worsening water quality or by the building of hydropower dams in the tributaries to Lake Vänern? A further theme to be explored is the story of how a heavily polluted lake became a clean lake. What role did the scientists play in that two folded story: first recognizing the problem, and later defining the measures applied to clean the lake. Which national and regional science institutions were established to contribute to this development, and how did they contribute? In the late 1900s Lake Vänern also became the largest lake in the EU. How did for example the Water Framework Directive influence the definition of water quality problems in the lake?

The second theme, water quantity, will be a direct follow up to my article "Understanding Lake Vänern." This theme can, from a chronological viewpoint, be divided in two subthemes: The first revolves around the question, how the

institutionalized hydrological science (*The Swedish Meteorological and Hydrological Institute*) have contributed to knowledge and plans for making the hydropower regulation reservoir that was created in 1938 more effective. And the second is an analysis of the processes around what I have labeled “the future lake,” meaning new drainage patterns in the Lake Vänern drainage basin that might develop due to climate change. I am interested in how the history of the lake, for example the long water level series from 1807, is going to be used in this scenario. How will these patterns be defined and how will the historical understanding of the lake effect this discussion? How will hydrological science balance the risk (flooding and landslides in the downstream valley) and the economic interests in the hydropower reservoir owned by the state electricity producer Vattenfall?