

'Let the River live'

During the course of this semester the project investigated the city of Sarpsborg and its future plans to expand and become a major link to Europe with the inter-city rail development. With a background from environmental science, I was immediately drawn to the challenges along the river banks and the hydropower dam.

The river was a spawning ground for anadromous Wild Salmon (*Salmo salar*) however over the years the industrial development contributed to ecological challenges in the habitat quality. Anadromous Salmon spend the first part of their lives in fresh water, then they migrate out to sea for a few years.

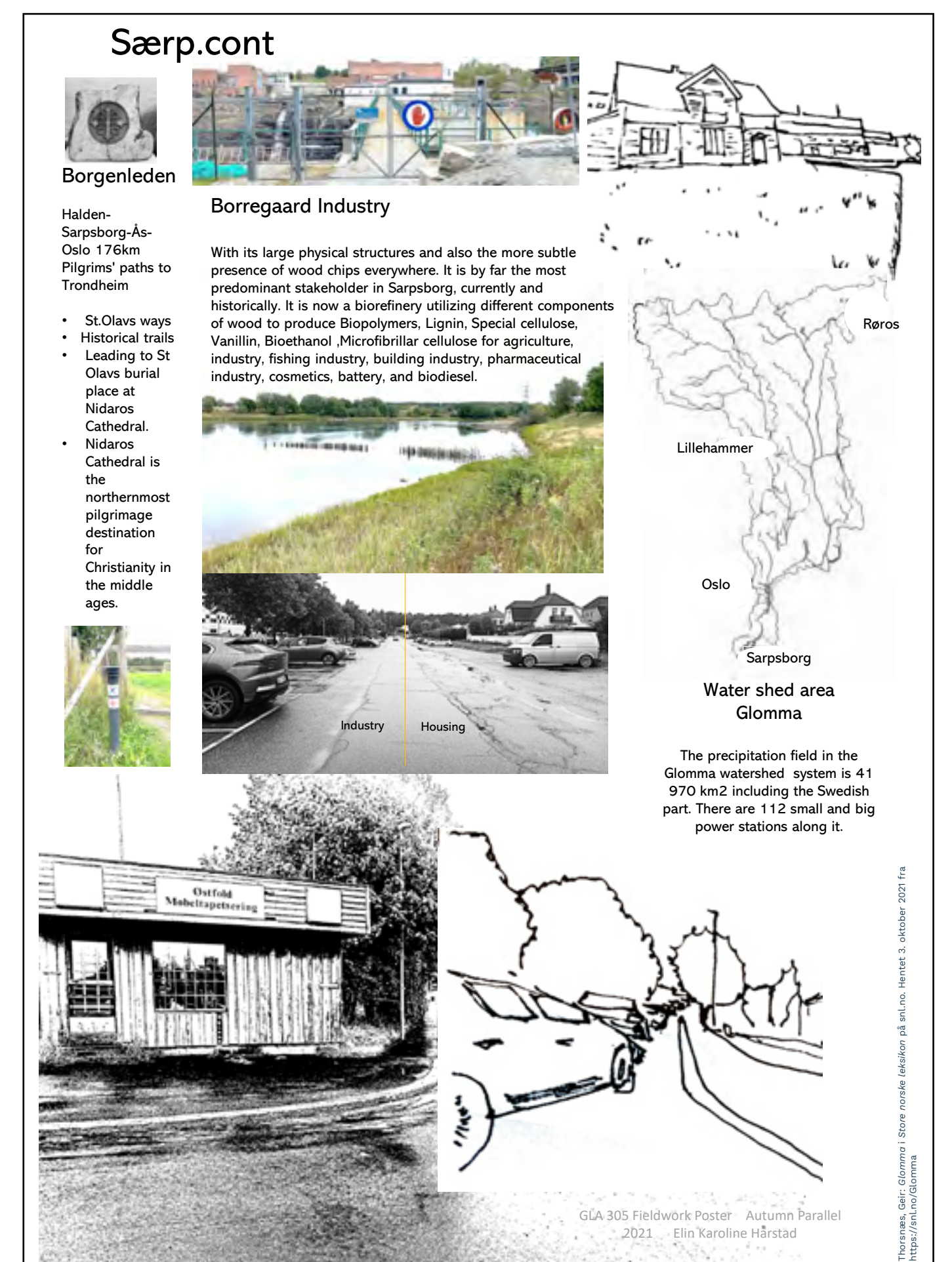
The anadromous Salmon have a 'homing' instinct and therefore return to the spot they were hatched in river inlets to reproduce. Despite efforts the returning wild Atlantic Salmon population has plummeted the last few years and the situation is dire. I suggested three strategies to increase habitat quality, improve longitudinal river connectivity and an on-land fish farm.

Fieldwork Photography



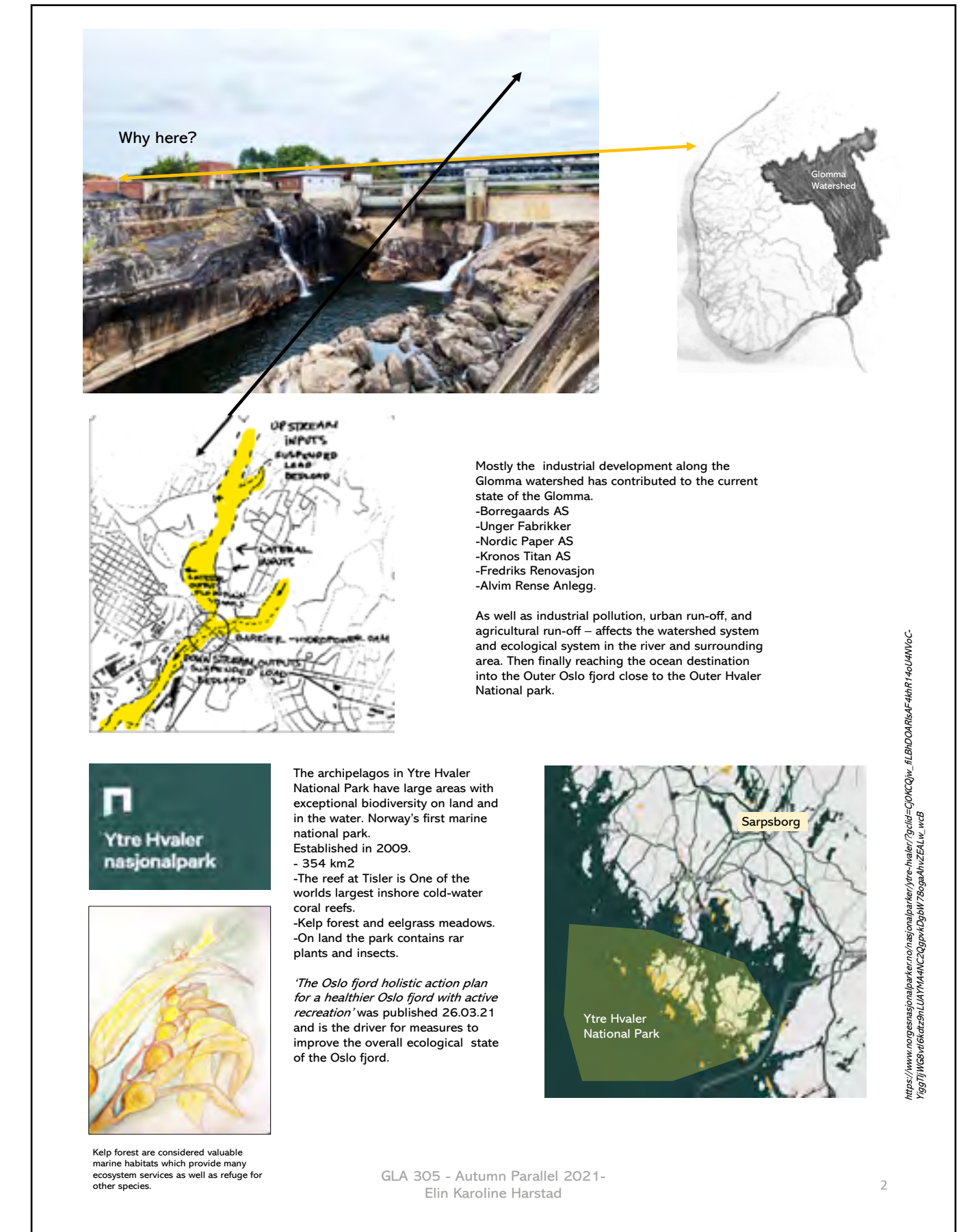
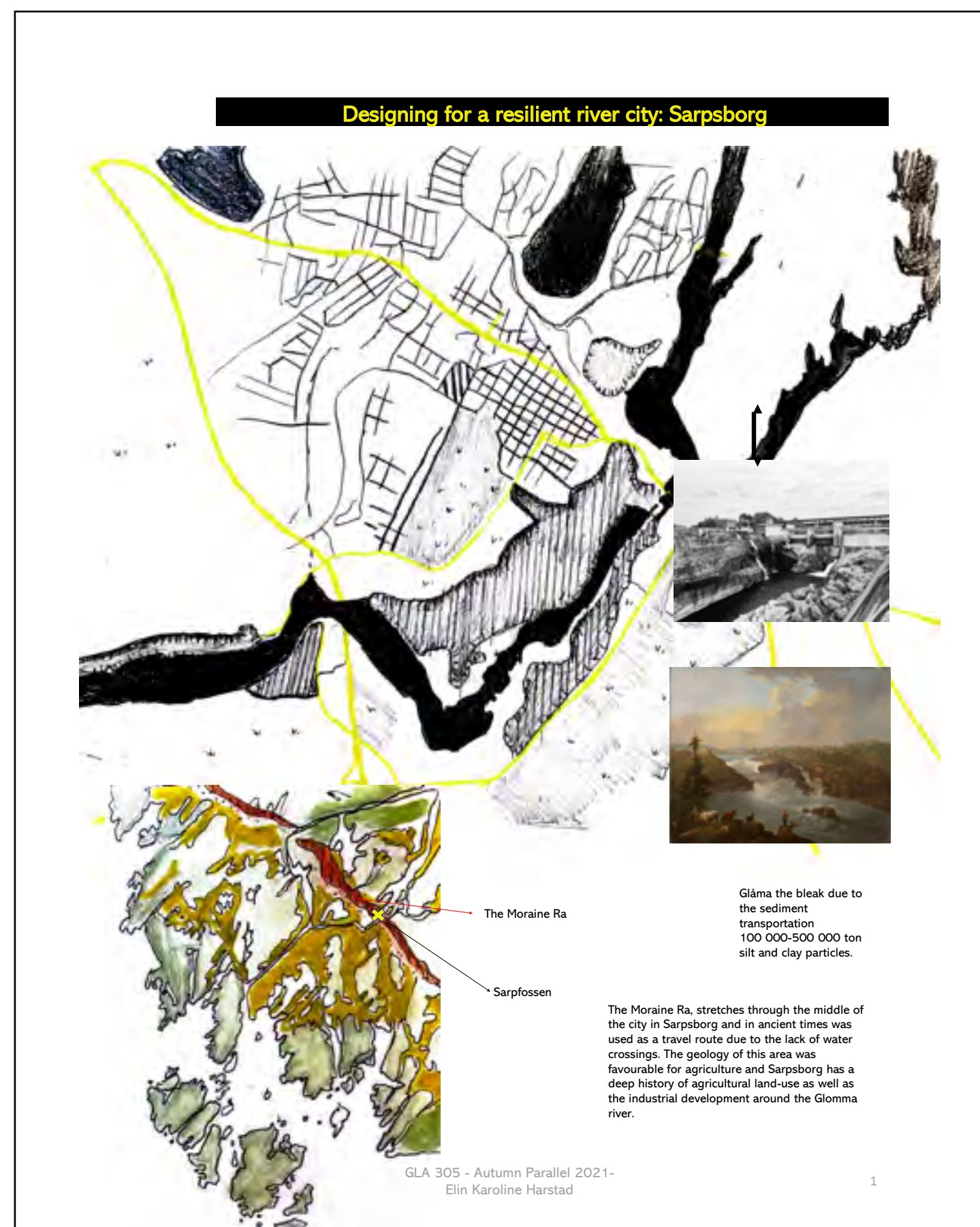
Fieldwork Posters

Sarpsborg is an impressive city. During fieldwork we spent time walking and exploring the area. The main attraction of the city was the industrial development along the River Glomma. Not only did the west-east terrestrial crossing serve as a bottle neck for cars and pedestrians, the hydro electric power dam served as a barrier for the riverflow and migrational species.

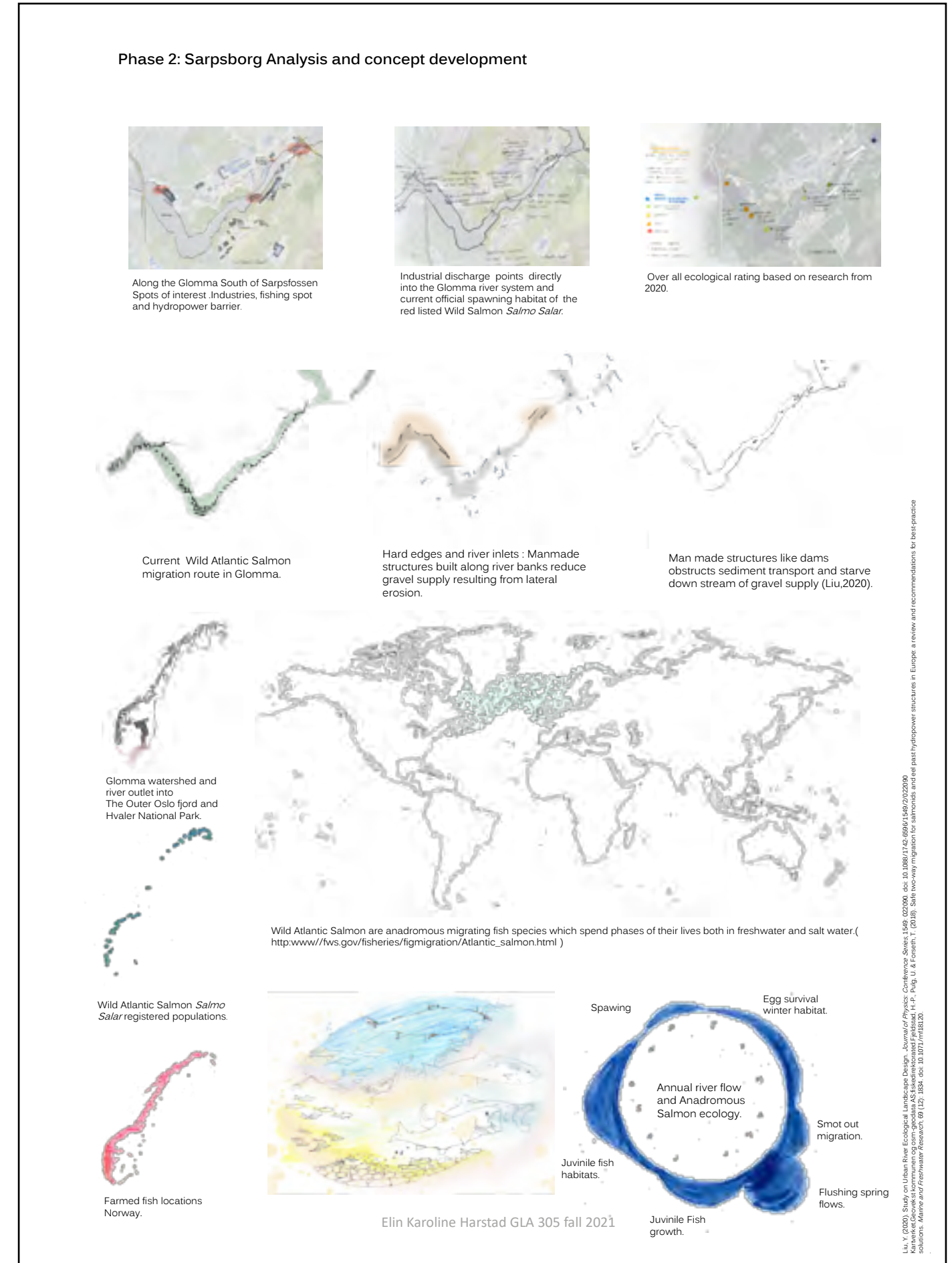
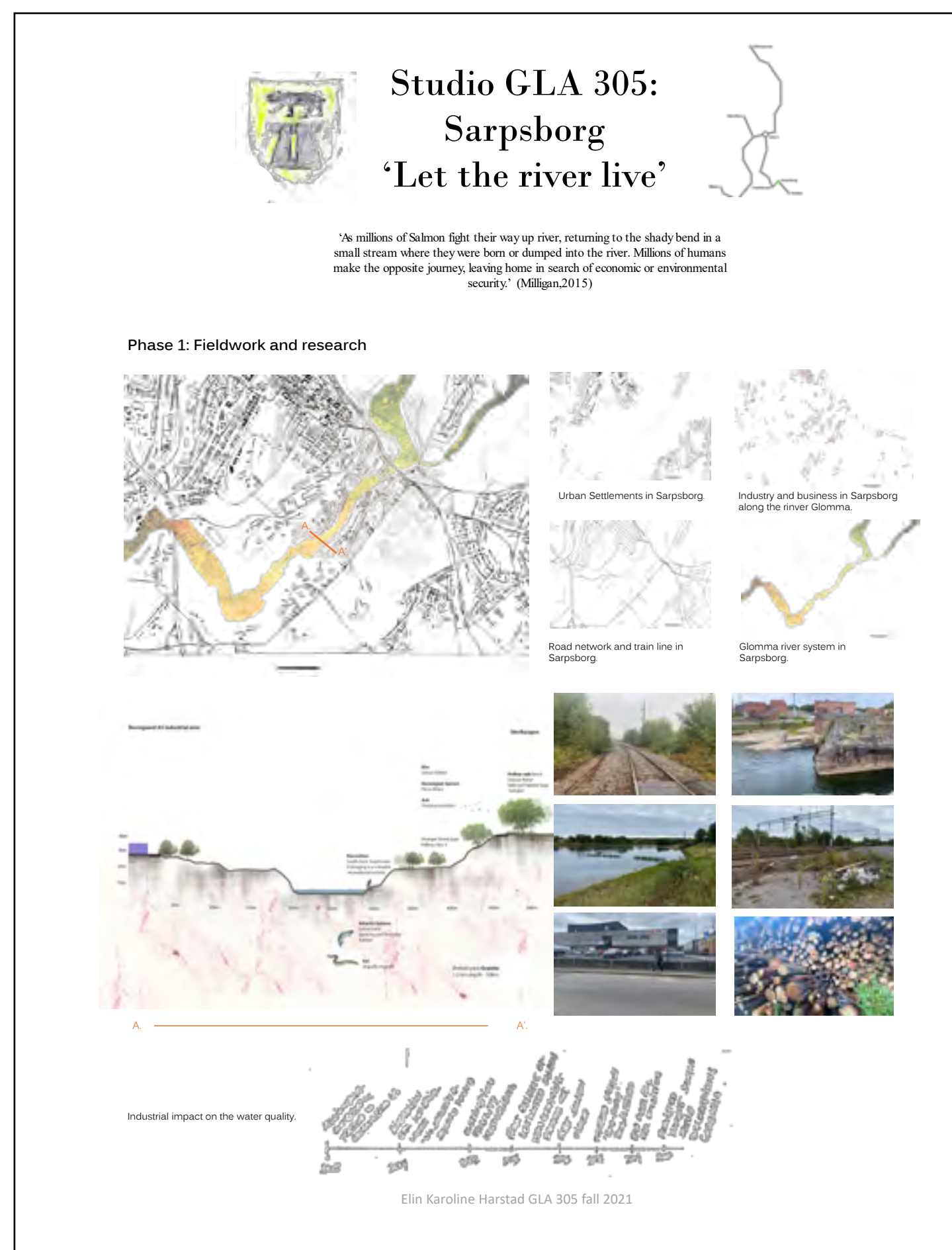


What Caught My Interest

'As millions of Salmon fight their way upriver, returning to the shady bend in a small stream where they were born or on the spot below the fish hatchery where they were dumped into the river. Millions of humans make the opposite journey, leaving home in search of economic or environmental security' (Milligan, 2015)



In the analysis part of the project I investigated the Glomma river and its watershed, the geology of the area and the river outlet. Rivers provide sediment transport downstream and therefore undisturbed can provide good oxygen levels and acceptable gravel deposits which are essential for spawning habitats for anadromous Salmon.



Final Review Posters

My final design proposals aim to tackle three different challenges that may threaten the Wild Salmon population in the area. The nature-like fish-by-pass can provide migration opportunity for multiple species but especially the Wild Atlantic Salmon. Improving the exiting habitat with lo-tek approaches such as adding gravel and dead wood. Another large threat to the Wild salmon is the aquatic farmed salmon industry. Therefore thirdly, suggesting to establish an on-land fish farm, can in the long-run alleviate wild fish populations and marine habitats from the aquatic fish farms.

