

Interactive comment on “GIS analysis of effects of future Baltic Sea level rise on the island of Gotland, Sweden” by Karin Ebert et al.

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Response to Anonymous Referee #1 GIS analysis of effects of future Baltic Sea level rise on the island of Gotland, Sweden Ebert, Ekstedt, Jarsjö

We thank anonymous referee #1 for the comments on our paper. We entirely agree with the referee, the raised points are relevant and interesting!

Study area Gotland: As suggested by the referee, we will improve our motivation why we chose Gotland. Our reason to choose Gotland was that it is the largest island of Sweden, with a fully intact and possible self-maintaining infrastructure. Gotland can only be reached by boat and is an own entity, in comparison to Öland that has a main-

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land contact by bridge. Nonetheless, as the referee points out, Öland will suffer even worse from sea level rise, giving its topography, and therefore Öland is our planned next target for future studies of this kind.

We thank the referee for pointing out the ground water quality of the EU water framework – we will include additional information in our revised paper version. Also, as the referee points out, we will make clearer that there is already now a problem with saltwater intrusion and water quality. We would like to point out though that Figure 6 A in our paper shows the current risk of saltwater intrusion.

Discussion: According to the referee's suggestions, we will restructure the discussion. We will discuss life quality and bird life together, and try to reduce the number of subtitle. To meet the criticism of the reviewer we will elaborate more on the economic consequences. However we also wish to point out that economic consequences are complex, long-term, and depending on different possible scenarios both of the effects of sea level rise and the municipality's ways to tackle them. We are in contact with an economist to deep-dive into the economic consequences in a future paper. We will also emphasize that the decrease of natural values is not solely economic.

Comments on technical corrections: Line 104. Referee: County should be country. Gotland is the largest island of Sweden. Yes, correctly it is the largest island of Sweden. However we will not change county to country – Gotland is a county (swed. län) and not a country. County is the correct term.

Line 365 Thank you, yes, entirely correct. We will reword to avoid stating “never before”.

Figure 1. Thank you, we will enlarge the location map in the inset, and we will improve the symbols for cities/towns and electricity lines.

Figure 3. Thank you, we will redo the colours for wells at these elevations to better distinguish them.

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