

## ECN 371: Exercise set 5 - suggested answers

1. Should be trivial once the model is up and running.
2. Increasing Secci Depths in the Baltic Proper by 0.1 meters from (1) does not change anything. The reason for this is in order to achieve the improvements in the other sub-basins, improvements in the Baltic Proper are already at 0.6 meters. This is due to the flows between the various sub-basins.
3. Excluding *Land use*, *Livestock reduction*, and *Fertilizer use* change total costs to 384.7 mill. Euro per year, an increase of more than 300 mill. Euro per year. The reason for this is that the measures now excluded are among the least costly to undertake. By excluding these measures, other and more costly measures need to be implemented. Recall that Nest is a model that seeks to achieve targets at least cost.
4. Tightening the standards by 0.2 meters in all sub-basins makes the solution infeasible. Again, this is due to Nest seeking to achieve targets at least costs.
5. Allowing abatement to take place in the excluded sectors from 3, but with the standards in 4, increases costs to 173. mill Euro per year.
6. Excluding Latvia from undertaking measures increases costs to 313.8 mill Euro per year, a cost difference in relation to 1 of about 230 mill. Euro. Latvia's cost of abating is less. Consequently there is room for other countries to pay Latvia to abate, and everyone is better off given the set targets.

Feel free to play around more with the model. Deliver feedback on the model to Alexander Sokolov, the head developer. His e-mail address is: [sokolov@su.se](mailto:sokolov@su.se), and provide feedback to me on the usefulness of these kinds of exercises. I will then be on the look out for other suitable models to use in class.