

Interactive comment on “Understanding and managing a complex estuary: the process towards more congruence between the physical system characteristics and the management system of the Westerschelde (Netherlands)” by A. van Buuren and L. Gerrits

Anonymous Referee #2

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General comments

This article deals with a highly interesting case study which has a high level of complexity of the biophysical environment and its management structure. It fits more or less within the scope of HESS (under the keywords 'hydrology and social sciences'). However, it requires major revisions. Main points of criticism are:

- the evaluation framework that has been applied to the case study is not strong, there-

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fore the conclusions from the research are unclear.

- it contains serious errors and unsubstantiated statements
- the English language requires many corrections and editing
- it is too long
- references in text to the tables are mostly missing
- some interpretations and conclusions cannot be checked because essential information is lacking (for instance a clear and explicit description of the different managing authorities and research institutes is badly needed).

Specific comments (a selection is given here):

p. 1372, line 24: The estuary is called Westerschelde from the border of the Netherlands to the sea. In Belgium the estuary is called Zeeschelde.

p. 1373, line 25: Probably you seek answers to questions, not the questions itself. But why are you interested in these questions? I find these questions difficult to understand.

p.1373, line 1,2: sentences are unclear and unprecise. What do you mean with 'the estuary has a flood protection role'?

p. 1374, line 24: Why are 'These social demands' inherently in conflict?

p. 1375 lines 4-6: deepening of the channel has only a marginal effect on the high water levels. There has been research on this which needs to be referred to.

p.1375/1376, lines 27/1,2: In this sentence, much confusion is reproduced that exists elsewhere. First of all, the estuary in the Belgian part should be looked at separately from the part in Holland. For instance: managed realignment ('ontpolderen') in the Belgian part has a completely different effect on the hydrodynamics and safety than in the Dutch part. Furthermore, 'giving room to the river' is a concept that is not applicable

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to an estuary. And the suggestion that 'public opinion' thinks that 'setting dikes back diminishes the safety of the hinterland' seems very peculiar and is not substantiated.

Section 3: complexity of physical characteristics of the Westerschelde estuary: This section requires rewriting with help from an expert in the morphodynamics of estuaries. It is also too long as it contains many repetitions.

p. 1379, line 13. Does an estuary have a demand? This sounds strange to me.

p. 1380, line 15: this is nonsense: demands are not in conflict because certain characteristics are interconnected. Also the statement that 'one function can only be realized at the expense of another' is unsupported and false (see also page 1392 where it is stated that for instance 'ecological development and accessibility [...] can benefit from each other'.

p. 1381. line 15. What is 'he system of researchers'?; line 19: what is 'a sense-maker'?

p. 1382, line 18: it is not clear what is meant with the 'interdependency' between the different elements of the physical system. Do you mean that for instance, morphological entities and processes such as sedimentation and erosion are in dynamical interaction with the biota of the system? If yes, say so and give examples.

p. 1382, line 23: the use of the word 'holistic' is meaningless.

p. 1384, line 1. Here you state your objective, i.e. to empirically analyse management and research practices. In the following sentences you present your method. First of all this method should be described earlier in the article and clearly visible. Second, the method you have been using is not at all clear and understandable.

p. 1384. line 9. the 'anthropocentric style' comes out of the blue.

p. 1385, line 5: what do you mean with a 'hermetically closed research system'? And can you substantiate this statement?

p. 1385, line 21/22: if the erosion and ensuing transport of sediments occur in the

estuary, why is the estuary than importing sand?

p. 1386, line 10. What is 'the stop-start policy'?

p. 1389, line 24: what is 'dislocating dikes'? Do you mean relocating dikes?

p. 1392, line 6: what do you mean with 'congruence between management and research and the physical characteristics of the estuary'?

p. 1393, line 2: here 'empirical approach' is opposed against mathematical approach. This not correct. Also a mathematical approach can be based on empirical formulations (and in the Westerschelde case this is especially relevant, because the main morphological mathematical model ESTMORF is essentially an empirical model).

p. 1393, line 5: a social system does not understand. It is not a human being.

p. 1394, line 9/10: what are these major revisions in the structures you are thinking of?

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