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Interactive comment on "On a neck, on a spit: controls on the shape of free spits" *by* A. D. Ashton et al.

Anonymous Referee #2

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General Comments: This manuscript by Ashton et al. discusses the importance of feedbacks between the headland, neck, and hook on the control of spit shape. Most previous studies have highlighted alongshore sediment transport and wave refraction as the first-order control, so the modeling results of Ashton et al. are certainly thought provoking and unique. The manuscript is very well written, novel, and contains interesting conclusions. The scientific methods and assumptions made are clearly outlined, and the results, interpretations, and conclusions from the modeling effort are sound. The authors thoroughly describe the literature and conclusions of previous workers studying spits in an inclusive manner. The figures are of high quality, and clearly describe the different model runs. There are few grammatical and editorial errors, so the authors have done a nice job preparing the manuscript. Overall, my only comment to consider is largely to include real-world observations, and justify some of the assump-

tions made.

Specific comments: As I mentioned above, my main comment for the paper is that I think the authors should relate their assumptions to real-world observations. I realize this is a good modeling paper and it is certainly not the focus/aim, but it would be beneficial if the authors could convince the reader that some of their assumptions are in fact observed.

In section 3.1, the authors could justify the wave statistics. Some discussion of storms should also take place here. Also, the wave symmetry and the ratio U should/could be justified to some degree. In the systems for figure 1, what are the observed parameters? In section 3.2, there is no mention of storms and the role they play in spit evolution. What happens if there is a storm changing the wave conditions for one of the modeled days? Also, I would welcome a section (even if it was brief) with some connections to the natural world with real-life examples/observations from spits. Again, I understand this is an exploratory model approach, but it would allow readers to make some relevant connections. I offer some more specific comments below:

Page 522, first paragraph: Some mention of storm statistics (or them being ignored here) is warranted.

Page 522, second paragraph: Here is where it would be helpful to have some real-world examples you could point to. Do you see erosion of previous deposits for established spits?

Page 522, line 20: I realize this is an assumption, but how often is the backbarrier and shoreface depth the same in nature? Also, figure 3 shows a different scenario.

Page 523, first paragraph: What happens if you vary A or U? What is the justification for using it in this instance?

Page 523, second paragraph: But, many of the spits you show have significantly higher elevations than 1 m.

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Page 524, first paragraph: Again, a discussion of storms would be good here for the deep-water wave characteristics.

Page 526, third paragraph: What observations of overwash (and the role it actually plays) exist in nature?

Technical corrections: Page 521, line 11: I would remove the parenthesis around the sentence. It seems out of place.

Page 526, second paragraph, last sentence: Remove parenthesis at the start of the sentence.

Interactive comment on Earth Surf. Dynam. Discuss., 3, 515, 2015.