

The following are comments on “The dynamics of Whitcomb Flats” written by Phil Osbourne from Pacific International Engineering.

General: This is a well-done very professional report. I especially liked the abundant color figures. It contains good compilations of dredging volumes, bathymetric changes as well as geomorphic changes in the spit. It has an extensive section on wave modeling, which is interesting but adds little to the report as I will discuss below. One incidental point is the shoal you describe in this report is called by at least some oystermen as Whitcomb Spit to differentiate it from Whitcomb Flat that (they say) lies off the mouth of Johns River.

Let me list some page notes.

P4 “ Whitcomb Flats originated as part of the flood shoal complex....” Then why not study the entire flood shoal complex?

P 10 2<sup>nd</sup> Par I think Goose Is became erosional at this time (61-74)

P14 “The shoreline north and east of the south jetty receded during jetty construction” This is really hard to see on fig 2-1

And “Significant sand accumulation in the Whitcomb Flat area by.....1940’s” Fig 2-1 looks like there has always been a “significant shoal” there...even before the jetty was built.

P15 “indicate most of the sediment out of Half Moon Bay ...transported west” I strongly disagree! Look at the sand build up on the groins on the revetment just east of Half Moon Bay. I would like to see the data in “Osbourne et al 2003.

P17 “ Migration of sand waves to the southwest of the inlet throat....” Are the sand waves LOCATED sw of the inlet throat or are they migrating sw FROM the inlet throat?

P19 “ erosion accretion patterns.... forced by large scale forces [caused by] accretion at Damon Pt...” I think that you should look at the larger scale i.e. the whole system. See further comments below.

Fig. 2-4 You need to label the axes

Wave Modeling section: As you can tell I'm not much for wave models but here's what I see.

- a. 8 m waves affected by the bathymetry.
  - b. Bathymetry is deepening
  - c. So more 8m wave energy is delivered to the spit
- But fig 3-2 shows no 8 m wave averages

I think the model and especially the use of wave averages, weakens your argument that deepening causes more wave energy to fall on Whitcomb Flat. No one would argue that the spit is formed from wave energy. But I would argue that small waves shoaling up on the spit during exceptionally high tides probably move as much sediment as anything.

P.46 If the Corps is "moving 16% of the gross sediment flux in the inlet throat....cannot account for the observed changes in the area adjacent to Whitcomb Flats" This statement seems to absolve the Corps from any involvement here. There are only two agents moving sediment and Grays Harbor, the Corps and God. So perhaps the Corps might share a little responsibility for the "observed changes". Actually I think that you could make some interesting sediment budget arguments if you fleshed this section out a bit.

P 47 ...." Plant dune grass..." Yes, if wind transport is a factor in moving sand on Whitcomb Spit. You never mention it as a factor in the body of the report. Is it a factor? Are there dunes on the spit? Have you been out there?

General Comments: The spits and islands of Grays Harbor are part of a large sediment transport system. It is a system that has been evolving since it was created 2000-3000 years ago. Many folks view nature as a constant unchanging environment and suggest that changes like those on Whitcomb Spit are the result of the doings of mankind.  
(Besides you can't sue Mother Nature).

I think that if you base conclusions about Whitcomb Spit on a study of a very small part of the Grays Harbor sediment transport system the likelihood of error is large.

I would suggest a study that would include all of the shoals in GH. (I count 10 or 11). Comparisons of spits near the dredge activity and those some distance from it could make a strong case for Corps responsibility or lack of it. Interestingly at one of the early meetings with the oystermen, a

fellow with beds up in the North Bay complained that the spit just outside of his beds was threatening the beds in a fashion just like Whitcomb Spit. Clearly a geomorphic study of all the spits and shoals would be a good place to start. I would also suggest a visit to these sites and samples of sand to be analyzed for their grain size and heavy mineral petrology. I think an experiment with snow fences and other sand retention devices would prove interesting as well.

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