

1. At the end of CQ1 discussion (p.5), Mr. Walther refers to a Dr. Barnes statement that “under Michigan law, any structure must be designed to withstand a 50-year storm event...,” and later under CQ4, while discussing the Holmberg system Mr. Walther states “this will not be enough to provide protection in the event of a 50-year storm.”

Does this imply a Holmberg system will be seen as not complying with Michigan law, even though many have been installed in Michigan?

M. Walther. his may be the case. Although someone might certify that the Holmberg System is capable of withstanding a 50-year storm event, I am very doubtful that the structure could withstand a 50-year storm event; I fully expect a Holmberg system would not protect the uplands from damage during a 50-year storm event.

Can we afford to protect against a 50-year storm and still make the beach accessible to guests?

M. Walther. You have to answer this question. Physically, it can be done.

D. Barnes. I think that the 50 year storm event refers to the integrity of the structure not protection against damage to shore line property. The structure may withstand a storm event expected in a 50 year period but may not afford protection to structures and land lose during that event.

2. In CQ1 and elsewhere, there is the recommendation to have the annually-dredged sand brought to our beach. Are we inviting foreign animal life or other matter that would be undesirable to the extent that we should rather bring in sand from inland?

M. Walther. This is a good question for a biologist, but I expect the answer is very likely “no.”

D. Barnes. I think that any undesirable species would be capable of migration from the channel dredge site to adjacent beaches if the environmental conditions were suitable. Giving undesirable creatures a “lift” to a new home just up the beach should not unduly facilitate migration.

3. In CQ2, (p6) Mr. Kadelsik states in his experience “projects can be bonded for up to the amount of the cost of the project.” Does this mean the bond covers only the damage to our structure?

M. Walther. See Ron.

R. Kadelsik. Yes, bonds are written to cover the cost of a specific project. You may be able to get insurance to cover other damages.

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4. In CQ3 (p7), Mr. Walther states “at this point, he would have to suggest refurbishing the seawall.” And “...if LCA couldn’t live with the seawall, he might do something to beef it up.”

Is a submerged groin system included in “something to beef it up?”

M. Walther. No, a groin system really would do nothing to significantly “beef up” the seawall. A seawall generally provides protection during high water conditions and addresses “cross-shore transport” of sand. Groins address long-shore transport of sand.

D. Barnes. Certainly a new groin structure could be considered a maintenance /upgrade approach. The important point is the substantial additional cost of the Holmberg structure. The cost per foot of shoreline protected would fall well outside the cost of simply repairing the existing groin system.

5. In CQ 6 (p11), Mr. Walther states “... the Lake levels are very likely to dwarf the effects of the Holmberg system.” Does this imply losing any sand above the groin?

M. Walther. Yes, loss of sand above and around the groins is likely under sufficiently high water conditions.

D. Barnes. Substantial rise in lake level (above about 581’; lake level is currently about 576’-77’) will result in widespread shore damage, regardless of the presence of a groin system. Landward migration of the upward concave beach profile will lower the beach surface at the shoreline and increase the likelihood of shore damage.

6. In CQ6 (p11), “Professor Barnes and Mr. Walther agree that an increase in water level would increase the potential for downstream damage/erosion.” Is this because LCA has a groin system, or regardless of whether we have such a system.

M. Walther. Either way, as the groins, seawall, and revetment – all are “artificial headlands” which can cause down stream erosion.

D. Barnes. The groins (of any kind) will empty (as described above) subsequent to a substantial lake level rise and be far more prone to damaging interruption of long shore drift, especially in a “hot spot” immediately to the north. Substantial rise in lake level without groins would result in beach profile loss in the near-shore zone all along the beach.

7. In CQ7 (p12), Dr. Barnes believes the north is “where the camp receives substantial amounts of sand now on the beach.” and therefore LCA adding a groin system may be “more concern as to erosion...causing damage south of the camp.” How might we mitigate that concern? Would other panel members agree with Mr. Auernhamer in CQ12 (p18) that the dredged sand will or should be placed on the public beach to LCA’s south.

M. Walther. See Dr. Barnes and Mr. Auernhamer. Yes, I agree that dredged sand should be placed south of the camp – as recommended by Dr. Dean.

D. Barnes. The mitigation of down drift sediment starvation, due to a long shore drift barrier, is the same regardless of the short term drift patterns. That mitigation is in the form of beach nourishment.

8. In closing remarks (p28), Mr. Walther states “when the water level is high over the system, the system will not function well” in reference to the Holmberg system. Does this refer to functioning as a beach builder, or as a protective measure, or both?

M. Walther. Both, under high water conditions, waves commonly erode (move sand from) the upper (previously dry) portion of the beach and deposit sand below the elevated water level; the Holmberg system would not deter or prevent this “cross-shore transport” and can become ineffective under high water conditions relative to building or retaining a dry beach. However, under high water conditions, the Holmberg system may trap sand below the water – to the top of the structure.

D. Barnes. Both.