

**Port Everglades Navigation Improvement Project
Sediment Model Webinar
August 10, 2016**

Presented by Michael Kabiling – Powerpoint presentation

Action Items from Webinar:

1. Jocelyn: Heard Citation from studies done late 1990s. Where can they be obtained? Ans. Michael could shoot the copy to the Corps to give to agencies.
2. Can they get more animations and GIS deliverables? Can get but need to work with Corps and County on what is the maximum extent and concentration. Bob Brantley wants representation.
3. Bob B.: Good to have follow-up to have scenarios (deliverables) from Taylor Engineering. Lacy agreed to do that. Once geotech is obtained the Corps will follow-up.
4. If more questions send to Lacy or Matt Harold. Lacy will be arranging for another meeting for dredging scenarios and inputs.

- **Need more recent bathymetry data from Corps to update the model.**
- **Flow velocity: How to factor in offshore current?** (Chris M) Ans. Once of the scenarios they are looking into with seasonal magnitude and direction of the Fl. Current; can input into south boundary of the model. Part of model calibration? Wave station measures water level and currents. There is a vast data set of currents off shore that are available.
- **Vladimir: Model is retrospective; slide no. 9 – how will this help you? What will this measurement point do for you?** Did simultaneous measurements of tides etc. to apply to model. Water level, velocity and waves to calibrate the model.
- **Vladimir: Particle size: Model based on single particle sediment?** Particle tracking model formulated has a rate of infusion i.e. 10 kg/second. Modeler has a choice: each particle 1 kg or 10 kg. Model will simulate movement of each particle. Not the question: Does the model account for settlement differences between larger and smaller particles? Model can do silt, sand...need to know settling velocity of the particles. All be simulated at the same time. Output of model will be maps with each sediment size shown.
- **Vladimir: Was model tested by a real event i.e. Miami situation?** Way to apply model will calibrate for a particular period? Is prediction the same as actual results? Ans. No hydrodynamic data while there is a dredging operation before and after an operation. If hydrodynamic input data recorded the model can be used as Vladimir proposed.
- **Model used for other projects?** New Jersey Corps did calibration with measurements from dredging operation and compared with what the model predicted. Good prediction. Caution: Should measure transport of material near the dredge not what might occur from other nearby sources of sediment i.e. erosion.
- **Can those reports be provided?** Referred to NY/NJ dredging in the Corps. Was conducted in the bay.
- **Sensitivity of model to inputs?** How sensitive is model from variations in sediment mass rate? Depending on current and time of tides, results are sensitive to settling velocity.
- **Jocelyn: Heard Citation from studies done late 1990s. Where can they be obtained?** Ans. could shoot the copy to the Corps to give to agencies.

- **How long is each run:** Varies. i.e. 2 neaps and 2 spring tides; if dredging lasts 3 months or more then they can add on 6 simulations for 6 months. Can they see if Particles taken out of grid? Have to look at depending on type of sediment that they are looking into.
- **How does model know if it needs to re suspend the sediment?** Model shows where there will be erosion of deposited sediments and after no more erosion is shown that is the limit. Can specify shear stress for smaller, finer sediment. Vladamir: dependent on how long sediment stays so single particle would not work. Agree. Can change erosion sheer stress during the computation itself. If sediments compressed enough will start to erode faster.
- **Sediment rates input:** Taken not just from the Corps but also from the literature.
- **How many years use MIKE 21 model:** Since 2006 and 5 years before that DAWS? Version.
- **Can they get more animations and GIS deliverables?** Can get but need to work with Corps and County on what is the maximum extent and concentration. Bob Brantley wants representation.
- **Is model capable of having multiple discharge points?** Entry of sediments at cutter head and from scow overflow attached to a spider barge. Yes it can have multiple locations along vertical and horizontal axis.
- **Bob: Good to have follow-up to have scenarios (deliverables) from Taylor Engineering.** Lacy agreed to do that. Once geotech is obtained the Corps will follow-up.
- **If more questions send to Lacy or Matt Harold.** Lacy will be arranging for another meeting for dredging scenarios and inputs.