



Jacksonville Waterways Commission Lynette Self, Chair

The monthly meeting of the Jacksonville Waterways Commission was called to order on Thursday, October 5, 2006, at 9:00 a.m., in the City Council Chambers by the Commission's Vice Chair, Council Member Sharon Copeland.

The minutes for the September 7, 2006 meeting were approved.

The Commission heard a presentation on the effect of sound on manatees in the St. Johns River by Dr. Edmund R. Gerstein, Leviathan Legacy Incorporated, Boca Raton, Florida, whose study, *Underwater Noise Radiation from Hopper Dredging and the Zones of Masking That Impact Manatee Hearing in the Lower St. Johns River, Jacksonville, Florida*, was first submitted to the Waterways Commission in September 2005. After previously hearing Dr. Gerstein's analysis of the issues surrounding sound effects on manatees in the river, the Waterways Commission commissioned Dr. Gerstein to undertake a more thorough, detailed study. Dr. Gerard F. Pinton and Seth Barr of Jacksonville University's Department of Biology and Marine Science were co-investigators for the study. The Waterways Commission sought the study to determine whether or not there was any correlation between a spike in manatee fatalities in the river and a noise level in the river where dredging operations were prevalent that marred the manatees' ability to hear approaching vessels. The study analyzed the noise from dredging operations of the hopper dredge "Columbia," in the vicinities of Dames Point Bridge, Hart Bridge and Bartram Island as maintenance dredging operations were underway in the St. Johns River during August, September and October 2004.

Dr. Gerstein discussed how a series of acoustical measurements were made. The study measured ambient noise; active and passive propagation at various sites; and sound speed profiles in those active and passive sites to look at propagation effects near the water's surface. In addition, the study measured noise that came from the hopper dredging operation, including the number and length of transects to and from a disposal site. The study

evaluated the noise emanating from the suction head. Another source of noise was the cavitation from the vessel's propeller. Dr. Gerstein noted that hopper dredging differs from cutterhead dredging and hydraulic dredging in that hopper dredges are basically self-propelled. The hopper dredge moves slowly, sucking up sediment and depositing the sediment into a hopper that is inside the vessel.

In 2002, cutterhead dredging was used to deepen the channel in the St. Johns River in Jacksonville. There was a subsequent dramatic spike in manatee fatalities from collisions between manatees and watercraft in the immediate area. A key component of the study was to determine how noise from the dredging operations could have masked the sound of approaching vessels in a manatee's path. There had been no acoustical study that particular season to measure noise from the cutterhead dredging and its impact on manatees. In the acoustical study that Dr. Gerstein discussed, only hopper dredging was analyzed. The study determined that the noise from active hopper dredging, ship movement and the slurry pump are sources that are loud enough to mask the sound of approaching vessels.

The study took the noise level data from the 2004 dredging operation and the noise level of ships and evaluated the masking effect with respect to manatee hearing. In addition, noise based on a vessel's speed was measured and evaluated. In the aftermath of the spike in manatee fatalities a couple of years ago, the regulatory agencies saw increased boating speed zones are the culprit. The Gerstein study suggests that masking could very well have been the *actual* cause. The equipment used to measure sound speed profiles were a multi-channel digital computer recorder and GPS loggers.

The presentation concluded that manatees do not hear low frequency sounds very well. The study recommended "against vessel speed restrictions in the St. Johns River, as the acoustical consequences are counter-productive to manatee protection." Since dredging operations are noisy and impair manatees' ability to hear approaching vessels, small or large, dredging in the St. Johns River during winter months would reduce conflicts between the manatees and watercraft. The loudest part of a dredging operation is not the dredge head on the bottom but, rather, the dredge vessel and the dredge spoil pumping operation. Possible solutions to dredging noise include elevating the spoil disposal pipe out of the water and insulating the spoil disposal pipe in an air-filled casing. Moreover, the

study suggests that striving to minimize the number and length of transects to and from a disposal site would reduce the range of noise exposure in the waterway. Ships, particularly large ships or tugs pushing barges, created a sound “dead zone” in front of them where the engine noise from the rear of the ship or tug is practicably inaudible until the ship or tug is past the sound receiver.

Dr. Gerstein concluded that a possible solution to warning manatees of approaching vessels could be the attachment of a high frequency sound generator to the boat that would announce its presence and warn manatees to take evasive action. Dr. Gerstein indicated that he has worked for eight years to get necessary federal and state permits to test such a warning device.

The Commission then heard a presentation on Protection of Creeks During the Wonderwood Project by Robert Opland of the JTA and Superior Construction Co., Inc.’s representatives Tom Underwood and Curtis Long. At the outset, the construction company representatives said that their work was based on the premise that protecting the waterways was good business. They indicated that in the Wonderwood Project, a key component was good coordination between the contracting community, the construction company, JTA, Council Members Self and Ray, residents, the community, the riverkeeper and the neighborhood CPAC.

Dr. White indicated that on occasion, he has seen a situation where a silt fence at the site was not functioning and that sediment was overflowing the silt fence and construction people at the site did not seem to get it. The Riverkeeper said that JTA and the construction firm had worked with him on problems, that the communication has been good in addressing concerns related to damage to the creeks (concerns that had been brought to our attention by citizens).

Dr. Quinton White, Jacksonville University, discussed the Duval County Manatee Protection Plan Permitting Process Revisions. A motion was made to approve the Plan. By vice note, the motion was approved to recommend that the City Council approve the Duval County Manatee Protection Plan.

Margo Moehring, Division Chief, Strategic Planning, Department of Planning & Development, provided the Commission with an update on the Florida Fish & Wildlife Conservation Commission’s Interagency Meeting on the Manatee Protection Plan that was held in Orlando.

Jim Dickenson, CEO, JEA, provided the Commission with his assessment of efforts underway for the restoration of the Lower St. Johns River. Mr. Dickenson indicated that he wanted to take the opportunity to introduce himself to the Commission and to cite what JEA is doing to protect our waterways. He said that environmental stewardship was a great responsibility of JEA and that JEA's aim was to always exceed what regulations expect or mandate. Mr. Dickenson expressed some concern with the wording in a portion of the text of Resolution 2006-1061-A (JWW's Resolution 2006-01) (supporting efforts to restore the Lower St. Johns River). He expressed particular concern with wording in Section 3, "...The Commission believes in striving for the highest water standards for the river's health. It therefore supports a higher dissolved oxygen standard for the river and the most stringent nutrient reduction target or total maximum daily load in the Lower St. Johns River to address its nutrient problems." Mr. Dickenson said that JEA supported standards that were based on the best scientific data. He thought that the quoted passage was somewhat confusing as to what is to be expected of JEA.

Dr. Gerard Pinto, JEA, gave the Commission the monthly Manatee Update. He reported that there were no manatee deaths in the past two months. On the last aerial flight, 156 manatees were sighted, which is unusual for this time of year when the water temperature has dropped and manatees are expected to be heading south.

Dan Cronwath, Recreation Planner, Department of Parks, Recreation, Entertainment and Conservation, provided the Commission with a FIND update. There was good news to report in that all FIND grants for the year had been approved, five for five. In addition, the permits for the Goodby's Creek dredge had been acquired.

In Old Business, Commissioner Lowe made an inquiry about a land use amendment and application for an Atlantic Boulevard project presentation. The property in question is classified as agricultural and the application in the proposal would change the classification to a PUD. Commissioner Lowe wanted to know who owned the property. P&D's Margo Moehring said that she would come back to the next Commission meeting and answer the question and provide an explanation. Commissioner Lowe indicated that the site is one of our better estuaries.

The Commission voted to recommend to 2nd & Re-Refer **Ordinance 2006-1102**, Approp \$1,082,895 (\$812,171 FIND Grants, \$270,724 Local Match Rsvs for Fed Prog) for “Goodby’s Creek Dredge” Proj at 9020 Dan Jose Blvd; Amend Ord 2006-789-E (CIP) to auth Priority 1 Status; Auth Carryover to FY 2007-2008. (Dist 5/6 – Shad/Copeland) (BT 07-021) (Rowland) (Req of Mayor).

The Commission discussed the draft of a resolution regarding “Florida Boater Improvement Program Funds” regarding an application of JSO.

The next scheduled meeting of the Jacksonville Waterways Commission is November 2, 2006. 9:00 a.m.

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